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## Educational News and Editorial Comment

### ANNUAL MEETING OF THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS

The North Central Association of Colleges and Secondary Schools held its thirty-second annual meeting in Chicago, March 15–18. Under the plan of organization of this association, the work is largely done by three commissions, namely, the Commission on Institutions of Higher Education, the Commission on Unit Courses and Curricula, and the Commission on Secondary Schools. These commissions hold open sessions, and this year the meetings were more largely attended than formerly because of the many issues of far-reaching importance that were under consideration.

Among the issues before the association and the commissions were the following: (1) Should the college-entrance requirements be defined in terms of the work completed in the senior high school? (2) What should be the professional preparation of a teacher in a secondary school? (3) What standards and ideals in athletic matters should the association seek to cause higher institutions to enforce? (4) Should four-year teachers' colleges be permitted to secure classification on the same basis as colleges of liberal arts? (5) Should a minimum amount of professional training be required in the case of college instructors? (6) Should the association encourage the

furnishing to beginning teachers of a year of training in service? (7) What are the principal causes of the failure of students in their first year of college work? (8) How efficiently do the private teachers' agencies and the agencies maintained by colleges deal with the problem of teacher placement? (9) What provision is made in the junior high school for the classification of pupils on the basis of ability? (10) Should vocational teachers be counted in determining the minimum number of full-time instructors required for the admission of a high school to the approved list? (11) How far may tax-supported institutions extend the principle of selection for higher education? (12) What graduate degrees have been conferred during the past five years by colleges accredited by the association?

The differences between the discussion of questions such as the foregoing at a meeting of the North Central Association and their discussion at traditional educational meetings are very noticeable. At a meeting of the association, the members feel that a decision on any question is certain to have far-reaching influence because the association has the prestige as well as the machinery to carry out its recommendations. The questions, therefore, are very warmly debated.

It is impossible here to summarize fully the decisions on all the foregoing questions. In fact, it is anticipated that the next four issues of the *North Central Association Quarterly* will be filled with the addresses and committee reports made at the recent meeting. A few of the significant decisions were as follows:

By a unanimous vote the association went on record as in favor of the definition of college-entrance requirements in terms of the work done in Grades X, XI, and XII. This issue has been before the association for a number of years, and the association has frequently indorsed the general principle of freeing the junior high school from the restrictive influence of college-entrance requirements. This year the association took a long step in the direction of applying this principle when it adopted a report submitted by Professor A. A. Reed, of the University of Nebraska, in which definite recommendations concerning the solving of this problem were proposed. Among the recommendations were the following.

Full admission to be based upon eleven or twelve units completed in Grades X, XI, and XII. Where state laws or regulations of standardizing agents prescribe fifteen units, a college may accept three units from the junior high school properly certified by a senior high school without details.

Of the eleven or twelve units accepted for admission, not to exceed three may be non-academic; the academic units to consist of a major (three units) and two minors (two units each), or of four minors.

We recommend that all colleges of this association study anew their entrance requirements for schools of the four-year type in the light of this investigation, with the view to securing greater uniformity among institutions of the same type as well as those of different types, as far as may be consistent with permitting each institution to serve its own special needs.

A report was presented by Professor J. B. Edmonson, of the University of Michigan, before the Commission on Secondary Schools on the problem of the protection of the interests of beginning teachers. The following proposals were submitted with the recommendation that they be brought to the attention of the secondary-school authorities.

Policy One: A teacher with less than one year of teaching experience should not be assigned more than four classes per day and should not be assigned full responsibility for any extra-curricular activity or complete charge of a large study hall or session room. It is further urged that special care be taken to assign teaching in the major or minor fields of academic preparation of the beginning teacher.

Policy Two: The association urges that every approved school should employ a limited number of beginning teachers in order to furnish an adequate number of openings for the proposed apprenticeship year. During this apprenticeship year, the supervisory officers of the school should give the beginning teachers an adequate amount of help in carrying out plans for classroom teaching. It is not assumed that a school employing a teacher for an apprenticeship year is under any obligation to retain the teacher as a regular member of the instructional staff.

The Commission on Secondary Schools adopted the recommended proposals with the direction that they be edited in order to emphasize the necessity of the careful supervision of beginning teachers. It is anticipated that, as a result of this action, many schools will modify their practices in the employment and training of beginning teachers.

The meetings of the Commission on Institutions of Higher Education were of great interest to the representatives of certain colleges

that had been unable during the past few years to satisfy the endowment requirements of the association. A determined effort was made by certain of these colleges to secure continued recognition by the association in spite of their failure to satisfy the endowment provisions. There was much sympathy on the part of many for some of the colleges whose reputations and standings in the educational world were not in question but whose endowments were found to be below standard. Many felt that the association should continue to recognize these institutions. The opinion prevailed, however, that the commission must enforce its standards with strictness even though certain colleges would be removed from the approved list as a result of such a policy. The issue of the strict enforcement of requirements for the accrediting of colleges was carried to the floor of the association, and the members, by a decisive vote, supported the stand of the Commission on Institutions of Higher Education.

The Committee on Teacher Placement presented a report through its chairman, Principal G. W. Willett, of LaGrange, Illinois. This report showed that it is the practice of the majority of secondary schools to give preference to college placement bureaus in seeking candidates for teaching positions. The report further showed that there is a considerable degree of dissatisfaction with the services furnished by the private teachers' agencies. The committee was continued and directed to make a more complete report on its findings at the next meeting of the association.

The Committee on Athletics under the chairmanship of President H. M. Gage, of Coe College, reported before the Commission on Institutions of Higher Education. This committee presented a study of professionalism in athletics in higher institutions and reported in favor of requiring all accredited colleges to conform to certain ideals and standards in the administration of their athletic programs.

The Committee on Junior High Schools presented a report through its chairman, Superintendent T. W. Gosling, of Madison, Wisconsin, on the problem, "The Discovery and Treatment of Individual Differences in Junior High School Pupils." The committee reported that most of the junior high schools in the territory of the North Central Association are making a serious effort to discover

individual differences and to make provisions for these differences. Of the various methods adopted in the attempts to solve the problems arising out of individual differences of pupils, homogeneous grouping on the basis of mental ability outranks all others. It was found that 26.8 per cent of the schools are attempting to adapt the subject matter of courses to the needs of homogeneous groups.

The Commission on Unit-Courses and Curricula, through its chairman, Principal L. W. Smith, of Joliet, Illinois, presented a statement of the objectives of secondary education and reported in detail on the qualitative definition of units of work in English, French, Latin, elementary science, biology, physics, chemistry, home economics, and physical education. The complete report of this committee appeared in the March issue of the *North Central Association Quarterly*. The interest shown in this report was so pronounced that the Executive Committee directed that the report be reprinted and copies sold at a nominal cost. It is expected that the report will play an important part in the revision of the curriculums of the secondary schools in the territory of the North Central Association.

More careful selection of college students was advocated by J. D. Elliff, president of the association, who declared that the secondary schools should begin in the early years the elimination of those individuals who lack the ambition and qualities of character requisite for real success. In a discussion of the same problem, Chancellor E. H. Lindley, of the University of Kansas, took the position that the tax-supported institutions cannot be as rigid in their requirements for entrance as the privately endowed colleges but insisted that tax-supported institutions can be severe in the standards imposed on students after admission.

The reports from new teachers employed in secondary schools indicated that there is an alarming lack of uniformity in the professional courses offered in colleges and teacher-training institutions. The situation appeared so chaotic that a resolution was adopted by the Commission on Secondary Schools requesting the appointment of a committee of the association to study the problem of standardizing professional courses. This question has been before the association at previous meetings, but the association has never taken a posi-

tive stand on the question of the definition of professional work. It is probable that the association will seek to define professional courses at an early date in order to insure the establishment of a desirable degree of uniformity.

There were no significant changes made in the standards for the approval of secondary schools, although there was much discussion of the desirability of modifying the standards so as to admit small high schools employing fewer than the equivalent of five full-time teachers of academic subjects. It was finally agreed that the general issue of the admission of smaller schools to membership in the association should be submitted to a referendum vote of the principals of approved secondary schools.

A total of 2,073 secondary schools applied for approval by the association. Of these schools, 300 are organized as three-year high schools, 1,591 as four-year high schools, 25 as five-year high schools, 144 as six-year high schools, and 13 are unclassified. It is evident that the four-year high school is the prevailing type in the territory of the North Central Association although it appears that many four-year high schools have modified their ninth-grade work in terms of the theory of the junior high school.

President W. W. Boyd, of the Western College for Women, Oxford, Ohio, was elected president of the association for the year 1927–28. President Boyd has been active in the affairs of the association for more than twenty-five years, and his election comes in recognition of his services to the association.

Superintendent T. W. Gosling, of Madison, Wisconsin, was elected first vice-president. Chancellor E. H. Lindley, of the University of Kansas, was elected second vice-president. Professor J. B. Edmonson, of the University of Michigan, was continued as secretary, and Principal W. I. Early, of Sioux Falls, South Dakota, was continued as treasurer. The newly elected members of the Executive Committee are: President H. M. Gage, of Coe College; Principal E. H. K. McComb, of Indianapolis; Dean K. C. Babcock, of the University of Illinois; and Principal C. H. Perrine, of Chicago.

The next meeting of the association will be held at the Hotel Sherman, Chicago, March 13–16, 1928.

J. B. EDMONSON

## HIGH-SCHOOL TEACHING IN KANSAS

F. P. OBrien, director of school service and research, University of Kansas, has published a pamphlet entitled, *The High-School Teaching Load and Preparation of High-School Teachers*. The situation described as existing in Kansas is probably duplicated in a score of states. It shows that the schools of America have a long way to go before they can be thought of as properly equipped with teachers.

The situation is due in part to the sheer social impossibility of keeping pace in the preparation of teachers with the popular demand for secondary education. It is due in part to economic conditions. Unfortunately, it is due in no small measure to complacence on the part of American communities with conditions that are deplorable. The only method of remedying the situation is probably that of frankly reporting what is going on, as Dr. OBrien has done, in the hope of getting public attention concentrated on the need of reform. The summary paragraphs of the report are as follows:

This study, which represents a joint project of the State Department of Education and a bureau of the University of Kansas, provides detailed information on the teaching load and the teacher preparation of 2,449 high-school teachers and 410 high-school principals in Kansas. In the analysis of these facts the schools have been differentiated into three divisions on the basis of size of teaching staff.

With reference to the number of classes daily, some teachers in the small high schools have eight classes exclusive of other responsibilities. The median number of classes reported was four or five, not including such duties as study hall, home room, or directing student activities, which are frequently equivalent to one or two additional classes in computing the total teaching load.

The number of daily classes per teacher is closely related to the existence of an imposing number of very small classes, especially in the small schools. The median pupil-hour load of teachers in schools having thirty or more teachers is nearly twice as large as in schools having not more than ten teachers.

The average teaching load of both teachers and principals in the small schools included three different subjects or fields of instruction. In the schools having more than ten teachers a majority of the teachers have all of their classes in one subject.

The teaching schedule of a teacher in the small high schools usually involved such a diversity of subjects, with small classes in each, that the need of a larger administrative unit becomes evident for securing both efficiency and economy.

The degree of diversity in teaching schedules varied greatly by subjects.

Some subjects are taught singly much more frequently than others, while some subjects are seldom taught singly.

The teaching work did not seem to be assigned in such a way as to utilize very fully the academic preparation of the teachers. As high as one-third of those who majored in some subjects are teaching no class in the subject. Many others are teaching but one class in their major field.

The median amount of preparation in higher institutions in the subjects which they teach seemed grossly inadequate with reference to the teachers of several of the subjects taught. Among these were sociology, economics, psychology, physiology, physiography, and in smaller schools commercial subjects and physical education.

Ten hours of preparation of collegiate rank in a subject in advance of the work which is taught is proposed as a minimum standard of academic preparation of teachers. In several subjects the percentage of teachers who already reach this standard of preparation is large.

The deficient preparation of teachers for subjects taught was apparently not due to any general scholastic deficiency. More than 83 per cent of the teachers had a Bachelor's degree, and from 20 to 50 per cent (according to school-size grouping) had earned some graduate-school credit. Many had the Master's degree.

The hours of credit which the teachers have earned in professional subjects seemed restricted both in their number and in their distribution. Their weakness by subjects was most marked in measurement, guidance, curriculum, experimental and rural education, school hygiene, supervision, and comparative education.

The professional preparation of the high-school principal was weak in the same subjects and to almost as great a degree in general as was true of the teachers. This situation is the more significant since several of these subjects are prominently identified with the meaning and viewpoint of modern education.

An absence of varied or extended teaching experience was particularly marked among the teachers in the small high schools. A predominant number of both teachers and principals had had little or no experience in junior high or elementary schools.

## INSTRUCTION IN READING IN THE HIGH SCHOOL

It used to be assumed that instruction in reading is the duty of the elementary school and that the high school has a right to expect its pupils to be competent in this art. If the high school found a pupil who did not seem to be able to read, it dealt with him in summary fashion, treating him as lacking in native ability and in the intellectual characteristics which would justify his retention.

Recent scientific studies have tended to undermine this attitude

| Error | Number of Errors | Percentage of All Errors |
|---|---|---|
| 1. Inability to isolate the elements of an involved statement: | | |
| *a*) Inability to isolate the essential idea or element | 4,937 | 24.7 |
| *b*) Failure to record the specific thought when called for, giving instead general items taken from the context | 890 | 4.4 |
| Total | 5,827 | 29.1 |
| 2. Inability to grasp the full meaning of the question as stated: | | |
| *a*) Failure to note the significant word or idea in the question as stated | 2,235 | 11.2 |
| *b*) Failure to follow specific directions as stated | 713 | 3.6 |
| *c*) Failure to see the setting of the contribution as a whole | 310 | 1.5 |
| *d*) Inadequate grasp of vocabulary as it conditions success in getting the meaning from the printed page | 1,234 | 6.2 |
| (1) Technical vocabulary | 981 | 4.9 |
| (2) Everyday vocabulary | 253 | 1.3 |
| Total | 4,492 | 22.5 |
| 3. Inability to select the best one from among several possible answers: | | |
| *a*) Inability to discern between the right and the near right | 1,613 | 8.1 |
| *b*) Inability to hold ideas as tentative until they are weighed. Failure to check back or verify a conclusion | 689 | 3.4 |
| *c*) Inability to distinguish between contrasting words | 1,108 | 5.5 |
| Total | 3,410 | 17.0 |
| 4. Inability to associate related elements: | | |
| *a*) Failure to make correct associations due to occurrence of words frequently used in other associations | 363 | 1.8 |
| *b*) Failure to associate elements due to a poverty of life-experience either real or vicarious | 1,008 | 5.0 |
| *c*) Failure to neglect irrelevant material | 1,565 | 7.8 |
| Total | 2,936 | 14.7 |
| 5. Inability to follow a thread of thought through a maze of detail: | | |
| *a*) Failure to recognize the thread of thought on which the paragraph is strung | 300 | 1.5 |
| *b*) Failure to isolate the antecedent of a reflexive pronoun | 178 | 0.9 |
| *c*) Unwillingness to think through a treatise of labored detail even though a suggestion is given in the question as stated | 1,864 | 9.3 |
| (1) Where the difficulty is due to weighty grammatical construction | 872 | 4.3 |
| (2) Where the difficulty is due to a piling up of many instances | 992 | 5.0 |
| Total | 2,342 | 11.7 |
| 6. Failure to grasp from given explanations the significance of concepts essential to the understanding of the concept presented later | 678 | 3.4 |
| 7. Careless, irrational, or impossible answers possibly due to peculiar individual experience | 318 | 1.6 |
| Grand total | 20,003 | 100.0 |

on the part of the high school. These studies have demonstrated that reading is a highly complicated performance and that the mature pupil as well as the pupil in the lower school can profit by training. The type of reading which is appropriate when one is attempting to master a technical book or when one is following an intricate argument is different from the type of reading which one adopts when one is following a mere narrative. Differentiation of reading habits to fit the variety of demands made on the mature reader is therefore one of the ends which should be secured by high-school training. Not only so, but, as has been clearly demonstrated, improvement in rate and efficiency of reading can be secured long after the period of elementary education.

In an examination of the practical operations of the high school itself ample grounds have been found for urging on teachers in every department the necessity of attention to the reading habits of pupils.

The following paragraph and the table on page 329, which are quoted from an article by Frank C. Touton and Floy Horning published in the *Educational Research Bulletin* (Los Angeles city schools), show the need of more attention to reading in the high school.

> This report deals with the typical errors which appear from a close study of 20,003 incorrect responses made by 738 college entrants in a one-hour examination on silent reading. The types and frequencies of the errors appear in the table [p. 329].

## HIGH-SCHOOL TUITION OUTSIDE THE HOME DISTRICT

In the course of a study of the legal provisions in Colorado for the payment of high-school tuition outside the home district, Professor Frederick L. Whitney, director of the Department of Educational Research of the Colorado State Teachers College, has prepared a summary statement which describes the statutory requirements in this matter throughout the United States and reports several interesting items regarding Colorado. A part of the summary, which appears in a mimeographed report, is as follows:

> 1. The legal requirements in forty-eight states in the matter of the payment of high-school tuition for attendance outside the home district:
>
> *a*) In eighteen states districts must pay the tuition, or the schools are said to be "free."

*b*) In ten states tuition is provided for either by a larger unit of administration or by a special county levy, although in one state the county high school board makes a "nominal charge."

*c*) In seven states there is mandatory legislation, but the amount of tuition per pupil for the school month and year is set or limited. The limits are from $2.50 to $12.00 per month, and it is probable that even the largest amount is below the actual per capita total high-school costs. In one state the upper limit is set as "the amount of school tax paid by parent."

*d*) In three states the payment of tuition is a matter of bargaining between district boards interested (Colorado) or depends on a vote of the district or on a majority petition of voters.

*e*) In eight states state aid is provided for the payment of tuition in whole or in part.

*f*) In one state the district "charges" tuition not to exceed $2.00 per school week.

*g*) In one state tuition is charged, but there is no definite payment provision.

2. Definite mandatory legislation is found in a total of at least twenty-five states; ten others have rather tentative provisions for a payment of all or part of the high-school tuition; and in ten states the county unit takes care of all or the greater part of any possible tuition charge.

3. Two states have legislation which provides for a district vote or petition to effect the payment of tuition, and in one state (Colorado) permissive legislation makes it a matter of agreement between district boards.

4. Our state laws of 1909 made it compulsory on the board of directors of one district to permit a pupil of another district to attend school in the more accessible district and compelled the home district to pay a reasonable tuition.

5. The law of 1913 provided that the board of directors might refuse to admit outside pupils because of insufficient room.

6. Both laws have been held to be unconstitutional by the State Supreme Court on the ground that there is a constitutional mandate that instruction in the public schools in every school district shall be under the control of the directors thereof. To provide for the education of the children of a given district in the schools of another district, imposing the cost upon the former, was held to be an interference with the control of instruction, as no discretion was left in the board where there was no high school as to the character of instruction pupils would receive at their cost.

7. The present law is that of 1919, which leaves the matter of attendance and tuition to the boards of directors of the school districts interested. It is a matter of bargaining between boards.

# WHO SHALL MAKE THE CURRICULUM?

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In view of the conditions prevailing in the field of secondary education today, the importance of the question as to who shall make the curriculum can hardly be overemphasized. Evidence is accumulating from many sources to indicate most emphatically that the entire high-school program is in a state of flux and that high-school curriculums are being made today all over the country. In large institutions and in small institutions, in the industrial city and in the rural community, the process of curriculum-making is under way. The very conception of secondary education is experiencing radical change. The problem, therefore, cannot be evaded. Someone is going to make the curriculum of the public high school, and it is altogether obvious that the character of that curriculum must in the last analysis depend on the character of the curriculum-makers.

Up to the present time secondary-school teachers and administrators have developed no satisfactory technique of curriculum-making. In fact, until recently we have hardly been curriculum conscious. We either have had great faith in the conventional program or have assumed that the problem would solve itself. The large changes in that program which have appeared in past generations are not the reasoned products of critical study of human life and institutions on the part of our profession. They are, rather, the unanticipated fruit of contending social groups and forces. Agencies outside the school have been able to add new subjects to the program, but the vested interests within the school have ordinarily opposed with success any general attack on the curriculum. Only as subjects have displaced one another without seriously disturbing the balance of power among these interests, or as society has refused longer to patronize the elements of the traditional program because of popular passion or shifts in the foci of attention, have subjects

been dropped from the curriculum. In other words, after a subject has once established itself in the high school, it tends to remain so long as society permits or until it dies of old age. To a very large degree, we have pursued a policy of laissez faire.

This does not mean that we have not interested ourselves in certain of the minor problems of curriculum-making. As teachers of particular subjects, we have constantly sought to keep abreast of the advance of knowledge and to perfect the organization of material, but most of this effort has been expended within the limits of the accepted divisions of subject matter. The fundamental assumptions on which the program rests have seldom been questioned. Our methods have not enabled us to attack the curriculum as a whole. We have become accustomed to the addition of particular subjects to the curriculum, and we possess a technique for bringing about those minor changes which fall within the sphere of the subject-matter specialist. For dropping subjects or for organizing the program as a unit, however, the technique is lacking. As a consequence, subjects are being added to the curriculum almost three times as rapidly as they are being dropped. This process has been going on for a generation, but it cannot go on forever. The present unintegrated and unwieldy high-school curriculum is a result of this process of accretion. The situation will hardly be altered until some rational decision is reached regarding the persons who should make the curriculum.

Before this question is considered, however, two characteristics of the task of curriculum-making should be noted. These characteristics are so obvious that they would not deserve mention in this article if their implications were not so often disregarded. In the first place, curriculum-making is a task of great difficulty. None of the older professions face a task which is more arduous. Indeed, the thesis might very well be defended that the curriculum-maker has a more difficult task than the engineer, the lawyer, the physician, or the clergyman. If this contention is granted, it naturally follows that the curriculum should be made by persons specially and intensively trained for the task. The job can be intrusted to neither the tyro nor the mountebank nor the special pleader.

In the second place, curriculum-making is a task of great com-

plexity. It requires the utilization of wide ranges of knowledge and experience and the service of many special abilities and forms of training. This means that the curriculum must be made co-operatively. No single individual or type of individual can carry the burden alone. It cannot be borne by the superintendent, the principal, or the teacher, or even by all three working together. The task of curriculum-making must be recognized as a great co-operative undertaking in which the efforts of many different persons and groups are brought to focus on a common problem. If properly accomplished, it must tax to the limit the entire resources of the profession.

To whom, therefore, shall we turn for the performance of this difficult and complicated task? Perhaps the first approach to this question should be from the negative side. What persons should not be permitted to make the curriculum? What agencies already interested in the problem lack the necessary qualifications? We need not deceive ourselves with the thought that this task is necessarily going to be left to persons professionally trained for the task. There are literally hosts of individuals and groups striving today, as they have striven in the past, to shape the educational program. Many of them are sincerely devoted to the public welfare but are convinced that they alone hold the key which will unlock the doors to social salvation. They are ready and eager to make the curriculums of elementary school, secondary school, and college. Moreover, these forces feel no diffidence with regard to the matter; they have no doubts concerning their own competence; they are restrained by no traditions of professional courtesy; they are already at work. Among these agencies which are interesting themselves in the curriculum and which are not qualified for the task are the following: state legislatures, boards of education, powerful minorities, colleges, and persons concerned with the defense of special subjects. Here are five agencies which should not make the curriculum. A word of comment regarding the qualifications of each of them will be of interest.

The state legislatures seem to be increasing their interest in the curriculum. The bills and laws prohibiting the teaching of evolution

reveal the temper and competence of these bodies. Flanders[1] has recently reported on their activity from 1903 to 1923 in making the elementary-school curriculum. His study shows no tendency on the part of the ordinary legislator to make a modest appraisal of his own powers. Yet that the legislator is unqualified to make the curriculum goes almost without saying. His personal competence, of course, is not being challenged here. The point being made is merely that he is totally lacking in the professional training and experience necessary for the discharge of this task. This deficiency, however, because he is unaware of its existence, will not cause him willingly to forego the pleasure of expressing himself through the high-school curriculum.

Boards of education should be placed in much the same category as state legislatures. They are, in fact, minor legislative bodies bearing certain general responsibilities with respect to the schools, but their members are not qualified to perform the specialized educational tasks. In so far as the curriculum is concerned, their legitimate function pertains to the determination of general educational policy. Beyond this they should not go. Even in the discharge of this function they are likely to exhibit an undesirable and even dangerous bias. To a very large degree, boards of education are composed of representatives of the favored classes in American society. Therefore, in the formulation of policy and in the making of the curriculum, they will be tempted to use the schools to defend the interests of these classes. Perhaps a measure of bias of this order is inevitable, but it should be reduced to the lowest possible proportions.

This discussion of state legislatures and boards of education suggests the third type of influence at work on the curriculum, namely, the powerful minorities in the community. The ordinary industrial city or state is literally alive with these highly organized and articulate groups. Bessie L. Pierce[2] has recently shown in scholarly fashion

[1] Jesse Knowlton Flanders, *Legislative Control of the Elementary Curriculum.* Teachers College Contributions to Education, No. 195. New York: Teachers College, Columbia University, 1925.

[2] Bessie L. Pierce, *Public Opinion and the Teaching of History.* New York: Alfred A. Knopf, 1926.

how various groups have sought to influence the teaching of history and the social studies in our schools. According to her report, the United Confederate Veterans, the Grand Army of the Republic, the Daughters of the American Revolution, the Knights of Columbus, the Steuben Society, the American Bar Association, the American Bankers Association, the American Federation of Labor, the American Legion, the National Security League, and many other organizations have endeavored to modify the curriculum. Every one of these groups is interested in pleading some special cause in the schools. If they are permitted to write our histories, the high schools might as well close their doors.

Regarding the rôle played by the college in making the high-school curriculum, little needs to be said. We all recognize the power of this agency and the way in which this power has been used in the past. The college must be ranked among the most potent influences which have shaped the curriculum of the secondary school. During the past generation the bonds with which the college has held the high school in servitude have gradually been loosened, but even this elementary struggle for institutional freedom is far from won.

The individuals interested in the defense of particular subjects constitute the fifth agency of curriculum-making lacking the necessary qualifications. Because of the departmentalization of work in the high school and the emphasis in the training of high-school teachers on a narrow allegiance to subject matter, the secondary school has been greatly hampered in its efforts to reconstruct its program. Intense loyalty on the part of teachers to their subjects has been a chief factor in the retention of obsolete materials in the curriculum. It has likewise constituted a major obstacle to an attack on the curriculum as a whole. The work of the great national committees of subject-matter specialists has revealed the limitations of this type of agency. A large proportion of the effort which is going into curriculum-making in the secondary school today is rendered futile because of the protective behavior of these special vested interests. Unless definite safeguards are provided, the ordinary program of curriculum revision is likely to degenerate into a conflict among these vested interests. Increasingly, we must have teachers who are more than specialists in subject matter. If they are to have a voice in de-

termining the place of their subjects in the curriculum, they must be students of secondary education.

If, then, the making of the high-school curriculum is not to be intrusted to state legislatures, boards of education, powerful minorities in the community, college boards of admission, and persons interested in the defense of particular subjects, who should perform the task? To the writer, it would seem that the co-operative efforts of at least seven types of persons are required. We shall have to secure the services of the psychologist, the sociologist, the philosopher, the specialist in the selection and organization of the materials of instruction, the classroom teacher, the expert in the appraisal of the curriculum, and the high-school administrator. The contribution of each of these persons will be considered.

That the services of the psychologist are required, no one would question. At every level education has to do with the nature of the learner. Consequently, our knowledge concerning the adolescent and the factors that condition the learning process at this age can hardly be too complete. We must know much more than we do today regarding his abilities, interests, and aptitudes; and the high-school curriculum must reflect this knowledge.

Equal in importance to the psychologist and playing a correspondingly fundamental rôle is the sociologist. Whatever else it may be, education is the process whereby the individual is inducted into the life of society and into the use of its institutions. A knowledge of modern social life is therefore just as important to the curriculum-maker as a knowledge of the nature of the learner. The high school must serve the adolescent in his efforts to adjust himself to the conditions of life and to gain control over the instruments which constitute his social heritage. It can perform this service only as its program reflects a thorough knowledge of American civilization.

The contribution of the philosopher is also of a fundamental character. His is the task of developing a coherent system of values and of formulating the purposes of society and of education. This task cannot be evaded. As soon as we make a choice between alternative programs which represent two different approaches to life, we face the problem squarely. We may not recognize the source or nature of our own formulations, but we all have them. One of the

greatest needs in the field of secondary education today is a restatement of purposes, but this restatement must not be derived by the armchair method. It must, rather, rest on the most complete synthesis possible of science, aesthetics, and ethics. In this formulation of purposes no division of human experience may be ignored.

After the purposes of secondary education have been formulated, we shall have to turn to persons expert in the selection and organization of the actual materials of instruction. The findings of psychologists, sociologists, and philosophers must be translated into materials to be used in the school. In the choice of these materials the entire range of knowledge must be placed at our disposal. Moreover, these materials cannot be determined by inspection. They must, rather, be derived from actual experimentation in the school.

The last statement suggests the need of securing the co-operation of the classroom teacher. Until it has become the possession of the teacher, the curriculum is just so much inert material the educational value of which is unknown. It is but pigment, brush, and canvas without the painter. Not only does the teacher make use of the materials of instruction provided by others; he also throws these materials into forms which are as necessary as the materials themselves for the successful achievement of the purposes of the high school. Moreover, the teacher is much more than a specialist in some division of subject matter. At his best, he is an artist in guiding the process of learning and in developing personality.

A function closely related to that of teaching is the function of appraisal. We must have persons who are trained for the task of appraising the curriculum. As a matter of fact, we can go but little beyond the work of the psychologist, the sociologist, and the philosopher until we have devised ways and means of appraising the curriculum in terms of the accepted purposes of secondary education. At this point our technique of curriculum-making is particularly faulty. At the present time we must admit that our methods of appraisal are totally inadequate. We know how to measure more or less well in terms of classroom procedure what goes on in the classroom, but at the high-school level a technique for measuring the influence of the school in terms of social life is almost wholly lacking. We can make guesses and draw inferences, but we do not know how

the present high-school program is affecting American society. If we did know, we might be frightened. This freedom from anxiety is perhaps one of the consolations of ignorance.

We come finally to the work of the administrator, or, shall we say, the high-school principal. At least within the limits of a particular high school someone must organize, co-ordinate, and integrate the efforts of these different types of specialists. Moreover, the work of these specialists must be made to live in the school and in the teaching staff. Then, there is the additional task, perhaps the most difficult of all, of carrying the community along in the support of a program of curriculum reconstruction. The successful discharge of these several functions requires a high-school principal of unusual gifts, but there is no one else to whom we may turn. He is the logical candidate for the position. If a vigorous, scientific, and creative attack on the curriculum is to be made, an attack that differs qualitatively from the numerous compromises of the past, the high-school principal must recognize this as his major responsibility. The more mechanical aspects of his job will have to be delegated to others. He alone can supply that co-ordinating quality of leadership on which the successful reconstruction of the curriculum in terms of modern needs absolutely depends.

# A COMPARISON OF TEACHING PROCEDURES IN SHORT AND LONG CLASS PERIODS

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*The nature of the study.*—Recent emphasis on supervised or directed study has suggested a comparison of the procedures in the classrooms where supervised study is presumed to be going forward with the procedures in the classrooms in which there is no special expectation of provisions of this sort. Such a comparison is made possible by the fact that, during the years over which the study here reported extended, certain of the high schools in Minneapolis represented in this study were employing the usual period of forty or forty-five minutes in length while others were employing a period lengthened to fifty-five or sixty minutes. The study is based on observations made in classes in academic subjects in schools of both types. It undertakes a comparison of the two plans as to the types of activities going forward in the classes, including consideration of the amount and proportion of time devoted to each type and of the order of these activities within the period. There is also some attempt at a comparative evaluation of the effectiveness of the two lengths of class period in accomplishing the ends that supervised study is reputed to achieve, and some consideration of the means used to accomplish some of these ends. Interest in the comparison essayed should be increased to some extent because of the fact that, when the lengthened period was adopted in the high schools of Minneapolis employing it, no concerted effort was made to control procedures by dividing the period at some common point or by fixing the order of the activities. Each teacher was made responsible for adopting and using the methods which he deemed most effective for the subject matter in hand. It is to be expected that this freedom would yield a wide variety of classroom procedures.

The collection of data in what may be regarded as a random sampling of the classroom procedures was a part of the assigned work of students in three classes in the University of Minnesota enrolled in a course in the supervision of high-school instruction taught during the spring quarters of 1924, 1925, and 1926. These classes were composed of Seniors in the College of Education and graduate students, who were preparing for administrative and supervisory positions. Most of them had had teaching or supervisory experience or both. The project was planned primarily to afford an opportunity for some

TABLE I

DISTRIBUTION OF THE CLASSES OBSERVED ON THE BASIS OF THE SUBJECT TAUGHT

| Subject Group | Number of Short-Period Classes | Number of Long-Period Classes | Total |
|---|---|---|---|
| English | 25 | 20 | 45 |
| Mathematics | 31 | 26 | 57 |
| Social studies | 48 | 52 | 100 |
| Science | 33 | 49 | 82 |
| Foreign language | 30 | 32 | 62 |
| Total | 167 | 179 | 346 |

systematic observation and comparison of high-school instruction of the supervised-study and non-supervised-study types and only secondarily as an investigation, but the forms of report called for in achieving the primary purpose were such as to make tabulation and collation possible. Each student was required to visit four full class periods in the high school, two in schools employing the short period and two in schools having the lengthened period. In almost all cases the student observed his four classes in the same semester of work in the same subject. In all but a small proportion of cases, in which it could not be arranged, the students observed the work of four different teachers. No student visited classes in subjects with which he had not had considerable previous contact, many having themselves taught courses in the particular subjects involved.

The students reported their observations for each class on blanks requesting the following objective data: the name of the school and of the teacher, the subject, the particular course, the number of

pupils, the dominant classification of the pupils, the actual length of the class period, the order of the activities, and the number of minutes devoted to each activity. In addition, there were eight questions, which will be presented later, requiring judgment relating to the character of the procedure. These questions were devised to cover in brief form the chief advantages claimed for supervised study.

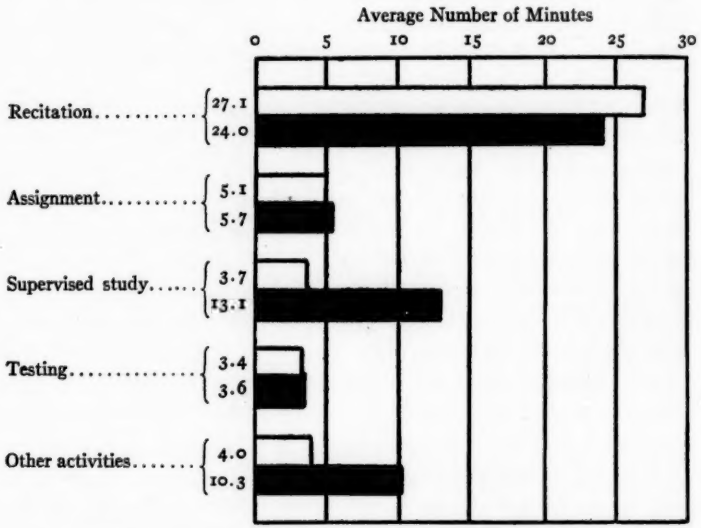


FIG. 1.—Average number of minutes in 167 short-period classes and 176 long-period classes devoted to each type of activity (in outline, short-period classes; black, long-period classes).

The observations covered 346 classes; 167 were in schools employing the shorter period and 179 were in schools having the longer period. Hereafter the two groups of classes will be referred to as short-period and long-period classes. The number of short-period classes and long-period classes in each of the five major academic subject groups is shown in Table I. The number of classes observed in each subject was determined largely by the preparation of the students making the observations. The numbers of classes reported upon in subsequent tables do not always coincide with the numbers

here shown because *all* measures represented were not at hand for *all* classes observed.

The short-period classes and the long-period classes were fairly comparable in size, except that the short-period classes had a somewhat greater proportion of large classes. The extent of difference in this regard is reflected in the median number of pupils in each type

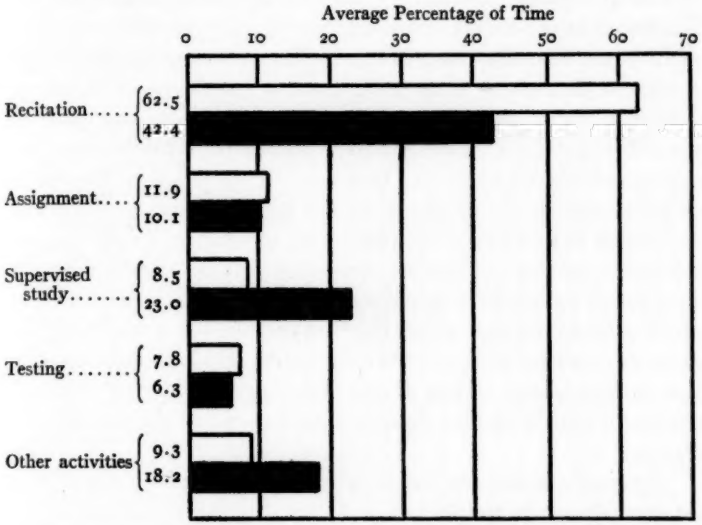


FIG. 2.—Average percentage of time in 167 short-period classes and 176 long-period classes devoted to each type of activity (in outline, short-period classes; black, long-period classes).

of class—approximately twenty-eight and twenty-six, respectively. This difference of about two pupils per class is not large enough in itself to call for diversity of treatment or procedure.

*Distribution of time to the different activities.*—The activities in the classrooms are divided into five groups, namely, recitation, assignment, supervised or directed study, testing, and other activities, such as demonstrations and lectures. The usual definitions of these activities were followed in making the reports. A comparison of the distributions of time to these activities in the short-period and the long-period classes is made in Figures 1 and 2. A fact not shown in

the figures is that the average total lengths of the periods were 43.3 and 56.7 minutes, respectively. It may be seen that, while the average length of period is more than thirteen minutes longer in the long-period classes than in the short-period classes, the amount of time devoted to recitation is smaller by fully three minutes. The short-period classes devote 62.5 per cent of their time to recitation as compared with 42.4 per cent in the case of the long-period classes. The two types of classes devote almost the same average number of minutes to the assignment, but this means a somewhat larger percentage of time given to the assignment in the short-period classes. This is a rather surprising condition in view of the fact that increased emphasis on the assignment is usually regarded as one of the features of supervised study. However, the fact that in the short-period classes an average of almost four minutes is devoted to supervised or directed study as compared with an average of only thirteen minutes in the long-period classes leads one to suspect that the lengthened period has not been accompanied in all cases by a shift to a new distribution of the time within the class period. The amount and the percentage of time given to tests do not differ widely, but the amount and the percentage of time devoted to other activities are larger in the case of the long-period classes than in the case of the short-period classes.

*Differences among subjects.*—A question naturally arises as to whether classes in the various subjects demand or secure radical differences in distribution of class time to the several types of activity. The actual distributions for the subject groups (Table II) disclose some interesting variations from subject to subject when the two types of classes are compared. If the percentage of time devoted to recitation is taken as an example, the largest difference between subjects is found in a comparison of science and foreign language. This holds true for both short-period and long-period classes, science having the smallest percentage of time devoted to recitation in both cases and foreign language the largest. This particular difference may actually be somewhat less than here shown owing to the difficulty of distinguishing between recitation and supervised study in observing classes in foreign language. Unless the observer is on his guard, he may classify as recitation supervised study involving oral

speech in a foreign language. In every subject group shown in Table II the percentage of time devoted to recitation is smaller in the long-period classes than in the short-period classes. When the time devoted to the assignment is considered, the relationships are not so unequivocal, either when comparisons are made within the two types of classes or when comparisons are made between them.

When one considers the percentage of time devoted to supervised study, one finds that the subject differences in the case of the short-period classes follow rather closely those in the case of the long-period

TABLE II

PERCENTAGE OF CLASS TIME DEVOTED TO EACH TYPE OF ACTIVITY IN EACH SUBJECT GROUP IN SHORT-PERIOD AND LONG-PERIOD CLASSES

| Subject Group | Recitation | Assignment | Supervised Study | Testing | Other Activities | Total |
|---|---|---|---|---|---|---|
| Short-period classes: | | | | | | |
| English | 58.3 | 11.7 | 4.3 | 15.6 | 10.1 | 100.0 |
| Mathematics | 59.5 | 11.9 | 15.6 | 10.6 | 2.4 | 100.0 |
| Social studies | 64.1 | 17.8 | 8.2 | 4.5 | 5.4 | 100.0 |
| Science | 51.6 | 7.6 | 12.1 | 9.4 | 19.3 | 100.0 |
| Foreign language | 80.9 | 8.6 | 0.0 | 1.6 | 8.9 | 100.0 |
| Long-period classes: | | | | | | |
| English | 46.5 | 10.7 | 21.1 | 11.3 | 10.4 | 100.0 |
| Mathematics | 37.3 | 12.3 | 32.2 | 5.6 | 12.6 | 100.0 |
| Social studies | 45.4 | 9.4 | 21.1 | 4.7 | 19.4 | 100.0 |
| Science | 24.6 | 11.5 | 24.9 | 9.6 | 29.4 | 100.0 |
| Foreign language | 66.8 | 7.0 | 17.7 | 2.8 | 5.7 | 100.0 |

classes. In both cases classes in mathematics devote the greatest percentage of time to supervised study; classes in foreign language, the least. In the case of every subject group the percentage of time devoted to supervised study in the long-period classes is more than twice as great as the percentage of time devoted to supervised study in the short-period classes. The shifts in emphasis from year to year (not reproduced here) have been irregular, but the tendency in every subject group has been toward greater recourse to supervised study both in the short-period classes and in the long-period classes. At the same time a small decrease in the average percentage of time devoted to recitation is seen in most of the subject groups.

*Illustrative variation in the distribution of time.*—Dependence solely on averages or other measures of central tendency in present-

ing the amounts and percentages of time would give an incomplete picture of practices in the short and the long periods. Such a procedure tends to give an impression of uniformity that is grossly erroneous, especially in the present instance. In order at least to illustrate the variation that actually exists, it is desirable to show the distributions of the classes on the basis of the number of minutes devoted to what was found to be the largest single element of both short and long periods, that is, to recitation.

TABLE III

DISTRIBUTION OF CLASSES ON THE BASIS OF THE NUMBER OF MINUTES DEVOTED TO RECITATION

| Number of Minutes | English | Mathematics | Social Studies | Science | Foreign Language | All Subjects |
|---|---|---|---|---|---|---|
| Short-period classes: | | | | | | |
| 0 | 5 | 2 | 6 | 7 | 0 | 20 |
| 1–10 | 1 | 5 | 3 | 0 | 0 | 9 |
| 11–20 | 2 | 6 | 2 | 4 | 4 | 18 |
| 21–30 | 4 | 3 | 10 | 9 | 4 | 30 |
| 31–40 | 12 | 7 | 16 | 7 | 13 | 55 |
| More than 40 | 1 | 8 | 3 | 6 | 9 | 27 |
| Total | 25 | 31 | 40 | 33 | 30 | 159 |
| Long-period classes: | | | | | | |
| 0 | 5 | 2 | 3 | 18 | 0 | 28 |
| 1–10 | 2 | 4 | 4 | 7 | 0 | 17 |
| 11–20 | 1 | 7 | 2 | 7 | 5 | 22 |
| 21–30 | 4 | 7 | 18 | 7 | 18 | 54 |
| 31–40 | 3 | 4 | 11 | 3 | 6 | 27 |
| More than 40 | 5 | 1 | 14 | 4 | 3 | 27 |
| Total | 20 | 25 | 52 | 46 | 32 | 175 |

It may be seen in Table III that in all subject groups except foreign language there is a variation from no recitation time in some classes to full-period or almost full-period recitations in others. This applies to both short-period classes and long-period classes.

The medians of the distributions shown in the extreme right-hand column of Table III are 31.5 minutes and 24.6 minutes, respectively. The average deviations from these medians are 12.5 minutes and 12.0 minutes, respectively. The percentages which these average deviations are of the medians—the coefficients of variability—are approximately 40 and 49, respectively. This shows

a somewhat but not remarkably greater tendency to variation in the long-period classes.

The variation disclosed in the long-period classes is probably in disagreement with some of the conceptions formerly advocated and still to some extent current concerning the proper distribution of time within the longer period where provision is made for directed study. These conceptions frequently found expression in the formal division of the class period into two parts, one of which was assumed to be devoted to conventional recitation and the other to study under supervision. Experience with directed study has discredited this formalism, and the conviction grows that the vicissitudes of effective teaching in different subjects, in different units or divisions of a single subject, with pupils of different abilities and interests, and by teachers with different personalities call for widely varying types of procedures and divisions of the class periods.

*The order of the activities.*—There seems to be no general agreement among the advocates of directed study as to the best order of the activities within the class period. This lack of agreement is paralleled by the order of the activities in the classes reported upon in this investigation (Table IV). In the short-period classes there was a total of forty-four different orders represented, while the number of different orders in the long-period classes was forty-nine. Among the classes having only recitation and assignment, the assignment is first almost as frequently as the recitation. Among the classes having recitation, assignment, and supervised study, there is a clear preference for the order in which they have just been named, with the following order second: assignment, recitation, and supervised study. Comparatively few classes were observed in which supervised study was first or second in the sequence. The variety of orders is accentuated by the insertion of testing and other activities at various places in the program of the period.

The chief difference between the two types of classes appears in the fact that, as is to be expected, many more long-period classes than short-period classes give some time to supervised study. Thus, the chief variations in the short-period classes are largely in sequences not including supervised study, while those in the long-period classes are largely in sequences including supervised study.

The wide variety of sequences indicates that there is little tendency in either type of class toward a single form of division of the class period and is in harmony with the variation in the distribution

TABLE IV

ORDER OF THE ACTIVITIES IN THE SHORT-PERIOD CLASSES AND THE LONG-PERIOD CLASSES*

| | Number of Classes | | Number of Classes |
|---|---|---|---|
| Short-period classes: | | Long-period classes: | |
| With some supervised study: | | With some supervised study: | |
| ARS | 7 | RAS | 30 |
| RAS | 5 | ARS | 19 |
| SRA | 4 | RTAS | 6 |
| AS | 4 | TARS | 5 |
| RAST | 3 | ASR | 5 |
| RS | 2 | RS | 4 |
| OASR | 2 | ATS | 4 |
| Miscellaneous | 10 | RSA | 4 |
| | | AS | 2 |
| Total | 37 | S | 2 |
| Number of different orders | 17 | TRAS | 2 |
| | | ORSA | 2 |
| Without supervised study: | | ORS | 2 |
| RA | 37 | ASTRS | 2 |
| AR | 37 | AROS | 2 |
| R | 7 | ORAS | 2 |
| ORA | 5 | TAS | 2 |
| ATR | 3 | Miscellaneous | 15 |
| OR | 3 | | |
| OAR | 3 | Total | 110 |
| TRA | 2 | Number of different orders | 32 |
| ARA | 2 | | |
| T | 2 | Without supervised study: | |
| TA | 2 | RA | 12 |
| RAR | 2 | AR | 8 |
| RO | 2 | AO | 4 |
| RAO | 2 | OAR | 4 |
| O | 2 | O | 4 |
| Miscellaneous | 12 | RAO | 3 |
| | | ARO | 3 |
| Total | 123 | TRA | 2 |
| Number of different orders | 27 | AOR | 2 |
| | | Miscellaneous | 8 |
| | | Total | 50 |
| | | Number of different orders | 17 |

* R = recitation; A = assignment; S = supervised study; T = testing; O = other activities.

of time within the class period. The variety of activities and of sequences of activities shows, so far as the system as a whole is concerned, little or no disposition to set up stereotypes of form and to

follow them blindly without regard to the vicissitudes of a complex learning and teaching situation.

*The extent of accomplishment of desirable ends.*—The extent to which the observers judged certain desirable ends to have been attained in the classes visited is indicated in the replies to eight questions on the report blank filled out for each period observed. The answers to these questions were largely subjective judgments, but, because each observer gave his judgment for both types of classes and concerning work in the same subject in both types of classes, the results of the comparison of instruction in the short-period classes with instruction in the long-period classes should have some validity.

Each of the questions was so stated that an affirmative answer would indicate a desirable end. The ends implicit in the questions do not represent one-man opinions of what should be transpiring under supervised study but are those which recurred with some frequency in an analysis of eight articles dealing with this innovation in teaching method. It may be assumed that the questions as a group have much in common with the purposes of supervised study. They are as follows:

Was the nature of the procedure such as to—

1. Afford attention to individual differences among pupils? How?
2. Make for effectiveness of assignments? How?
3. Reduce emphasis on "pure" recitation? How?
4. Foster self-activity and personal initiative on the part of the pupils? How?
5. Teach the pupils how to study the subject? How?
6. Develop habits of study? How?
7. Make for efficiency in home study? How?
8. Make possible the evaluation of intellectual and moral traits of pupils? How?

The percentage of affirmative replies to each question is greater for the long-period classes than for the short-period classes (Table V). The affirmative replies exceed 50 per cent of all replies for the short-period classes in the case of only one of the eight questions and for the long-period classes in the case of four questions. If the replies tabulated as "Partly" are included with the affirmative replies, the numbers of questions answered affirmatively in more than

50 per cent of the cases become for the short-period classes and the long-period classes three and five, respectively.

The percentage of affirmative replies for all questions combined is highest for mathematics in both the short-period classes and the long-period classes and is lowest for foreign language (Table VI). It is interesting to note, and probably significant, that the ranking of the subject groups on this measure corresponds very closely with the ranking of the subject groups on the basis of the percentage of time devoted to supervised study. A question arises as to whether the

TABLE V

PERCENTAGE DISTRIBUTION OF THE REPLIES TO THE QUESTIONS PERTAINING TO THE ATTAINMENT OF DESIRABLE ENDS OF DIRECTED STUDY

| QUESTION | SHORT-PERIOD CLASSES | | | LONG-PERIOD CLASSES | | |
|---|---|---|---|---|---|---|
| | Yes | Partly | No | Yes | Partly | No |
| 1 | 41.1 | 5.7 | 53.2 | 59.1 | 3.5 | 37.4 |
| 2 | 49.0 | 7.1 | 43.9 | 64.3 | 4.8 | 30.9 |
| 3 | 45.2 | 5.1 | 49.7 | 65.0 | 2.9 | 32.1 |
| 4 | 52.6 | 9.6 | 37.8 | 61.5 | 8.7 | 29.8 |
| 5 | 34.7 | 6.5 | 58.8 | 41.2 | 4.4 | 54.4 |
| 6 | 31.0 | 4.2 | 64.8 | 39.9 | 6.9 | 53.2 |
| 7 | 30.9 | 7.2 | 61.9 | 39.0 | 4.3 | 56.7 |
| 8 | 37.8 | 5.4 | 56.8 | 48.0 | 7.2 | 44.8 |
| All questions | 40.4 | 6.4 | 53.2 | 52.4 | 5.3 | 42.3 |

differences in achievement of the desirable ends indicated by these questions are due to the attention to supervised study, to inherent differences in the subjects of study themselves, or to other causes. The subject in which the superiority of the long period over the short period as measured by the percentage of affirmative replies to the questions is most marked is English, followed closely by science. In foreign language the superiority of the long-period classes over the short-period classes is marked, but the percentage of affirmative replies is below 50 for the long-period classes. If the test of the effectiveness of the lengthened period is the achievement of the ends indicated in the questions, the long period appears to have evidence in its favor in all subjects. If this evidence is to be accepted, however, there is still much to be achieved before these ends are attained to the extent desirable.

*The means of attaining the desirable ends of supervised study.*—After each question regarding the character of the teaching procedure observed was the further question, "How?" This question was included to serve the double purpose of encouraging more discriminating observation by the student and of making possible a list of the means of achieving the purposes of supervised study. The tabulation of the replies to this query for one of the major questions is shown in Table VII. Since the replies were in the words of the students who made the observations, it was difficult to reproduce faith-

TABLE VI

PERCENTAGE DISTRIBUTION, ACCORDING TO SUBJECT GROUP, OF THE REPLIES TO THE QUESTIONS PERTAINING TO THE ATTAINMENT OF DESIRABLE ENDS OF DIRECTED STUDY

| SUBJECT GROUP | SHORT-PERIOD CLASSES | | | LONG-PERIOD CLASSES | | |
|---|---|---|---|---|---|---|
| | Yes | Partly | No | Yes | Partly | No |
| English | 33.7 | 5.3 | 61.0 | 53.2 | 5.1 | 41.7 |
| Mathematics | 53.8 | 11.7 | 34.5 | 58.4 | 5.5 | 36.1 |
| Social studies | 48.2 | 6.9 | 44.9 | 55.0 | 3.9 | 41.1 |
| Science | 34.5 | 6.0 | 59.5 | 51.4 | 7.9 | 40.7 |
| Foreign language | 24.8 | 1.0 | 74.2 | 44.3 | 3.4 | 52.3 |
| All subject groups | 40.4 | 6.4 | 53.2 | 52.4 | 5.3 | 42.3 |

fully the ideas set forth and at the same time to make use of a reasonably small number of captions. Perusal of the replies as tabulated leads to the inference that, so far as the observers were able to report, little or nothing was being done in the long-period classes which was not also being done in the short-period classes. The chief difference is to be found in the greater frequency with which these methods were used in the long-period classes.

Similar tabulations for the other questions reveal similar conditions. One is moved to inquire whether there is anything to be found in the lengthened period which does not, cannot, and should not take place in the shorter period. One thing which the longer period appears to have accomplished in the school system of Minneapolis is, through extending the time in class, to make possible a more generous recourse to constructive measures. It is probably fair to say in addition that the use of these constructive measures in short-period

classes to the degree found has been in some part stimulated by their use in other schools in the same system in which the long-period schedule is in operation. To the extent that this is true we have in this situation another contribution of the introduction of the supervised-study program.

*Conclusions.*—In a comparison of a large number of short-period classes with a large number of long-period classes in which supervised

TABLE VII

OBSERVATIONS ON HOW THE TEACHING PROCEDURE MADE FOR EFFECTIVENESS OF ASSIGNMENT

| Method | Number of Short-Period Classes | Number of Long-Period Classes |
|---|---|---|
| Outlines, questions to be answered, emphasis on main points | 22 | 26 |
| Repetition, discussion, illustration, pupil questions | 12 | 20 |
| Written, mimeographed, pupils wrote it down | 9 | 16 |
| Assignment was definite | 11 | 14 |
| Motivation, need for study shown | 10 | 13 |
| Methods to be used were stressed | 7 | 10 |
| Pupils were made to understand the assignment | 9 | 6 |
| Simple, clear, easily understood | 5 | 4 |
| Much time was taken | 5 | 1 |
| Supplementary materials emphasized | 3 | 5 |
| Assignment related to the day's lesson | 3 | 3 |
| Work done on it while fresh in mind | ..... | 3 |
| Miscellaneous | 9 | 12 |
| Total | 105 | 133 |
| Number of class observations noting one or more of the above methods | 85 | 102 |

study is presumed to be carried forward, it is found, as anticipated, that, on the average, teachers of the latter resort to supervised or directed study more frequently and for a longer time than do those of the former. Likewise, their instruction is characterized by greater variety in the distribution of time to the different activities and in the order of these activities within the period. At the same time the similarities of procedures within short and long periods are sufficiently notable to warrant two further inferences, one touching the possibilities of progress which these similarities demonstrate for the shorter period and the other calling for an even more fruitful utili-

zation of the longer period. The data of this study lend some support to the growing conviction that there need be no essential difference between the methods used in short and long periods; the longer periods, of course, offer greater opportunity for desirable improvements. Certainly those who work in schools employing short periods have no justification for postponing the introduction of innovations associated with supervised study on the sole ground of the brevity of the periods. On the other hand, the sometimes relatively small or even negligible differences of procedure in favor of the longer period suggest that much may still be done before all its reputed advantages are achieved. Although these inferences are drawn from evidence in a single situation, there is no reason to believe that they are not generally applicable.

In recent years many schools and school systems have laid claim to the introduction of supervised study, and much has been written concerning it. Moreover, a few reports have appeared of efforts to evaluate this innovation in teaching method. Some of these reports have disclosed little advantage of supervised study over the conventional procedure. To date, however, even fewer attempts have been made to analyze and report what actually goes forward during the longer period which is provided in order to introduce supervised study. The authors of this article are of the opinion that analyses of the sort here reported are helpful in evaluating the new method because they show to some extent *what goes on* during the class periods. Such studies can at least help us to account for any similarities or differences in results in short and long class periods found in investigations with avowedly evaluative intent.

# REACTIONS OF HIGH-SCHOOL PUPILS TO HIGH-SCHOOL SUBJECTS. I

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Recently we have begun to learn the importance of taking the pupil into our confidence in curriculum-building. It has begun to dawn upon us that the attitudes and ideals built up when pupils must take subjects that they do not like may be far more detrimental than all the subject matter they get. Thus, we find several recent writers trying to view the curriculum from the pupil's standpoint. In 1922 Thorndike tried to determine the interests of pupils in particular phases of algebra as well as the high-school subjects they liked best and least.[1] In 1918–19 Book gave mental tests to six thousand high-school Seniors in Indiana and, in addition, had each one answer a questionnaire.[2] Book particularly tried to determine the occupations which groups of varying intelligence were entering. He found that the most intelligent boys were selecting the ministry, journalism, and science; that the mediocre group was selecting law, engineering, and teaching; and that those of lowest intelligence were selecting medicine, business, and farming. A similar investigation was made in North Carolina a few years ago which involved somewhat less than one thousand high-school Seniors.[3] About the same time Colvin made a study of the interests and probable careers of three thousand high-school Seniors in Massachusetts.[4] In 1925 Davis reported the judgments of eight thousand high-school pupils on

[1] Edward L. Thorndike and Others, *The Psychology of Algebra*, chap. iv. New York: Macmillan Co., 1923.

[2] William F. Book, *The Intelligence of High School Seniors*. New York: Macmillan Co., 1922.

[3] M. R. Trabue, "Abilities of North Carolina High School Pupils," *High School Journal*, VII (January, 1924), 3–8.

[4] Stephen S. Colvin and Andrew H. MacPhail, *Intelligence of Seniors in the High Schools of Massachusetts*. Bureau of Education Bulletin No. 9, 1924.

curriculum matters.[1] A still later study of this kind was made by Odell.[2] Odell's study included approximately twelve thousand high-school Seniors.

Realizing the value of the data secured through such studies, especially for the smaller high schools, the writer recently undertook a similar study in Kentucky. Before any data secured from the investigation are presented, a brief description of the scope of the study and the method used should be given. Seventy high schools enrolling from 32 to 151 pupils were asked to participate in the investigation. In thirty-five of these schools the curriculum of vocational agriculture is offered; in thirty-five schools it is not. The seventy schools represent sixty-one different counties. There were 5,322 questionnaires sent to the principals of the schools for the pupils to fill out. The pupils were asked not to sign their names so that they would feel perfectly free to express their likes and dislikes. Sixty-seven of the seventy schools had the questionnaires filled out as instructed. The total number of questionnaires returned was 4,739. All the tabulating was done in the writer's office at the University of Kentucky. Further information concerning the questionnaire will be brought out in the presentation of the findings. Two thousand one hundred and eighty-four pupils in schools offering vocational agriculture and 2,555 pupils in non-vocational schools answered the questionnaire.

The findings for the two groups of pupils are in part as follows:

1. *Failures:* (*a*) *Vocational schools.*[3]—The group of pupils in the vocational schools reported 926 failures, 518 among the boys and 408 among the girls. The number of girls answering the questionnaire, however, was 27 per cent greater than the number of boys. In other words, boys fail about one and two-thirds times as often as do girls.

The subject in which the greatest number of failures was reported

[1] C. O. Davis, "The Curriculum and the Seven Objectives of Secondary Education," in *Ninth Yearbook of the National Association of Secondary School Principals*, pp. 112–29.

[2] Charles W. Odell, *Conservation of Intelligence in Illinois High Schools*. Bureau of Educational Research Bulletin No. 22. University of Illinois Bulletin, Vol. XXII, No. 25. Urbana, Illinois: University of Illinois, 1925.

[3] The term "vocational schools" is here used to designate the group of schools in which vocational agriculture is offered. They are not strictly vocational schools.

is algebra. This subject is responsible for the greatest number of failures among both boys and girls and is the cause of 30 per cent of all the failures in the vocational schools. English accounts for 17.8 per cent of all the failures, the boys failing in this subject three times as frequently as the girls. History and Latin I are responsible for 15.2 per cent and 14.1 per cent, respectively, of all the failures. Latin I, however, holds second place if the number of failures is based on the number of pupils who have studied this subject. Moreover, Latin I seems to be just as difficult for the girls as for the boys if difficulty can be measured by the number of failures. Geometry is responsible for 15 per cent of all the failures that occurred above the first year. The figures seem to indicate that about 63 per cent of all the failures in the vocational schools are due to Latin and mathematics (arithmetic, algebra, and geometry).

Of all the failures reported, 61.8 per cent occurred in the first year, 28.6 per cent in the second year, and 9.6 per cent in the third year. Since the number of pupils who have had a chance to fail in the first year is greater than the number of pupils who have had a chance to fail in the second and third years, the number of failures in the first year should be larger than the number of failures in any following year. However, since the number of failures as we pass upward through the high school decreases much more rapidly than the enrolment, there must be other causes for the large decreases in the number of failures. Other causes that might be suggested are: (1) The teachers are more lenient with the pupils above the freshman year. (2) The pupils learn how to study in the first year. (3) The subjects get easier or are more interesting as we pass upward through the high school. The decreasing percentages cannot be due to a more select group of pupils since all failures recorded here are by pupils still in high school.

It may be noted that but few failures were reported in subjects that would tend to be taken by agricultural and home-economics groups. If all failures due to animal husbandry, biology, domestic science, occupations, and agriculture are combined, less than 3 per cent of the failures are accounted for; yet 43.5 per cent of all the pupils in these high schools are taking the agricultural curriculum. Several reasons may be suggested for the few failures in these sub-

jects: (1) A brighter group of pupils may be taking these subjects. (2) These subjects may be more interesting than the other subjects. (3) These subjects may be less difficult than the other subjects. (4) The teachers of these subjects may be more lenient in marking.

*b) Non-vocational schools.*—In the case of the pupils in the non-vocational schools, 995 failures were reported—527 boys and 468 girls. In this group of pupils the boys fail one and one-half times as often as do the girls. Again, the greatest number of failures reported is in algebra, with 229 failures; Latin I is a close second, with 222 failures. In other words, algebra accounts for 23.0 per cent of all the failures; Latin I, for 22.3 per cent. Latin I is responsible for a greater percentage of failures in the non-vocational schools than in the vocational schools, but this is doubtless due to the fact that the percentage of boys in these schools required to take it is greater than the corresponding percentage of boys in the vocational schools.

English holds third place, with 13.3 per cent of all the failures, the boys failing two and one-third times as often as the girls. History occupies fourth place, with 10.5 per cent of the failures. Geometry, general science, and Caesar hold the next most important places. It is interesting to note that Latin and mathematics (arithmetic, algebra, and geometry) are responsible for 60 per cent of all the failures in these schools. Of the 995 failures, 64.0 per cent occurred in the first year, 26.0 per cent in the second year, and 10.0 per cent in the third year.

*c) Reasons for failures.*—The pupils were asked to give the reasons for their failure in any particular subject. The questionnaire suggested four possible reasons for failure, with the request that the pupils check the appropriate one. A blank space was left for the pupils to write in any additional reasons. The reasons suggested are: "(1) because the subject was too difficult, (2) because I did not like the teacher, (3) because I did not consider it would be of any value to me, (4) because I failed to do back work thoroughly." Most of the pupils did not write in additional reasons. A few did, however. For example, several boys said that they failed not because they did not like the teacher but because the teacher did not like them. A great many other pupils said that they failed because they did not have any interest in the subject. It is probable that most of the

additional reasons were given because the pupils did not think that the subject matter would be of value to them, and in the tabulations they have been so counted.

From Table I it will readily be seen that pupils think the most frequent cause of failure is the failure to do back work. This seems to be the cause of 40.0 per cent of the failures in algebra in the non-vocational schools and 43.6 per cent of the failures in this subject

TABLE I

PERCENTAGE OF FAILURES IN EACH SUBJECT DUE TO EACH REASON SUGGESTED

| SUBJECT | NON-VOCATIONAL SCHOOLS* | | | | | VOCATIONAL SCHOOLS† | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Subject Too Difficult | Did Not Like Teacher | Subject Matter of Little Value | Failed To Do Back Work | Number of Reasons Given | Subject Too Difficult | Did Not Like Teacher | Subject Matter of Little Value | Failed To Do Back Work | Number of Reasons Given |
| Algebra.... | 29.4 | 14.8 | 15.8 | 40.0 | 283 | 34.0 | 8.7 | 13.7 | 43.6 | 275 |
| Arithmetic. | 40.0 | 20.0 | 16.0 | 24.0 | 25 | 60.0 | 0.0 | 7.0 | 33.0 | 15 |
| Caesar.... | 17.7 | 17.7 | 22.6 | 42.0 | 62 | 0.0 | 0.0 | 33.0 | 67.0 | 9 |
| English.... | 24.8 | 18.2 | 24.0 | 33.0 | 121 | 24.0 | 18.8 | 6.0 | 51.2 | 133 |
| History.... | 23.6 | 13.2 | 19.8 | 43.4 | 106 | 32.0 | 14.0 | 9.9 | 44.1 | 122 |
| Latin I.... | 35.4 | 13.4 | 21.1 | 30.1 | 246 | 28.4 | 23.9 | 11.9 | 35.8 | 134 |
| Geometry.. | 27.1 | 19.7 | 12.3 | 40.9 | 81 | 27.8 | 5.6 | 13.9 | 52.7 | 36 |
| General science.. | 26.9 | 17.3 | 11.6 | 44.2 | 52 | 43.2 | 22.7 | 2.3 | 31.8 | 44 |
| All subjects | 28.7 | 15.5 | 18.8 | 37.0 | 976 | 31.5 | 14.4 | 11.1 | 43.0 | 768 |

* Number of failures: boys, 527; girls, 468; total, 995.
† Number of failures: boys, 518; girls, 408; total, 926.

in the vocational schools. Failure to do back work accounts for 42.0 per cent of the failures in Caesar in the non-vocational schools and 67.0 per cent of the failures in this subject in the vocational schools. It accounts for 43.4 per cent of the failures in history in the non-vocational schools and 44.1 per cent of the failures in this subject in the vocational schools. It is the cause of 40.9 per cent of the failures in geometry in the non-vocational schools and 52.7 per cent of the failures in this subject in the vocational schools. Finally, it is found that failure to do back work accounts for 37.0 per cent of all the failures in the non-vocational schools and 43.0 per cent of all the failures in the vocational schools.

The next most frequent cause of failure in both groups of schools is the fact that the subject is too difficult. This accounts for 28.7

per cent of all the failures in the non-vocational schools and 31.5 per cent of all the failures in the vocational schools. In the non-vocational schools it is the cause of 40.0 per cent of the failures in arithmetic, 35.4 per cent of the failures in Latin I, 29.4 per cent of the failures in algebra, and 27.1 per cent of the failures in geometry. In the vocational schools it accounts for 60.0 per cent of the failures in arithmetic, 43.2 per cent of the failures in general science, 34.0 per cent of the failures in algebra, 32.0 per cent of the failures in history, and 28.4 per cent of the failures in Latin I.

Failure to think that the subject matter would be of value is the third most frequent cause of failure in the non-vocational schools. On the average, failures due to this cause are one and seven-tenths times as frequent in the non-vocational schools as in the vocational schools. A larger percentage of pupils in the vocational schools than in the non-vocational schools think that arithmetic, algebra, English, history, Latin I, and general science are of value to them. The reverse is true for Caesar and geometry.

"Did not like teacher" is the cause of 15.5 per cent of all the failures in the non-vocational schools and 14.4 per cent of all the failures in the vocational schools. In the non-vocational schools this reason accounts for 19.7 per cent of the failures in geometry, 18.2 per cent of the failures in English, 17.7 per cent of the failures in Caesar, and 17.3 per cent of the failures in general science. In the vocational schools it accounts for 23.9 per cent of the failures in Latin I, 22.7 per cent of the failures in general science, and 18.8 per cent of the failures in English.

It will be seen from Table II that "failed to do back work" accounts for the largest percentage of failures of both boys and girls, with the reason "subject too difficult" next in importance. The latter item seems to be the cause of failure much more frequently in the case of girls than in the case of boys. Dislike for the teacher is more frequently the cause of failure in the non-vocational schools than in the vocational schools. In the vocational schools teachers are more frequently disliked by the girls than by the boys. Boys give "subject matter of little value" as a cause of failure more frequently than do girls.

It was noticeable in tabulating the failures that there was great

variation in the number of failures in any subject in different schools. For example, in one school 90 per cent of all the girls in the sophomore class had failed in algebra, while in two other schools not a single failure in algebra was reported by the pupils. It was sometimes found that in one school a certain subject showed a high percentage of failures while in all other schools failures in this subject were almost unknown. One wonders whether such a situation may not be due to the fact that some teacher is dominated by the false idea that good teaching involves a high percentage of failures.

TABLE II

PERCENTAGE OF FAILURES OF BOYS AND GIRLS DUE TO EACH REASON SUGGESTED

| REASON | NON-VOCATIONAL SCHOOLS | | VOCATIONAL SCHOOLS | | ALL SCHOOLS | |
|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| Subject too difficult..... | 24.6 | 33.6 | 30.6 | 33.0 | 27.3 | 33.5 |
| Did not like teacher..... | 16.1 | 14.8 | 9.4 | 17.0 | 13.1 | 15.3 |
| Subject matter of little value | 23.7 | 10.7 | 12.0 | 7.4 | 18.4 | 9.3 |
| Failed to do back work.... | 35.6 | 40.9 | 48.0 | 42.6 | 41.2 | 41.9 |

Another noticeable fact about the failures was the great variation in the total number of failures by schools. For example, in some schools the number of failures averaged more than one for each pupil enrolled above the first year, while in one school not a single failure was reported in any subject by any pupil. In one school the boys showed a comparatively high percentage of failures, but not a single girl in the whole school had failed.

It would seem that those who are responsible for making the curriculums should be fully cognizant of the deadening effect of failures and the extent to which forced interest burns the candle at both ends. Caldwell was quite right when he said: "Pupils develop fastest when engaged most of the time upon things in which they succeed, not fail. . . . . Incomplete and imperfect learning and consequent failure are needlessly depressing. They are needlessly costly in money, school space, and human life, since those who fail have not moved on to the next level of achievement."[1] Kilpatrick has said:

[1] Otis W. Caldwell, "Types and Principles of Curricular Development," *School and Society*, XVII (March 24, 1923), 314.

"It is overcoming that on the whole educates. If our children are to grow in persistence, success is as a rule necessary."[1]

2. *Parental occupation.*—In the vocational schools thirty-five different occupations are represented by the fathers of the pupils. Of the 1,978 pupils answering the question, 1,267, or 64 per cent, have fathers who are farmers. If, then, we could establish the assumption that there is a strong tendency for a boy to follow in the footsteps of his father in choosing an occupation, there would certainly be no question about whether we should offer the agricultural curriculum in these high schools if we believe in the vocational training. This assumption is very doubtful, however, if we can rely on the findings to be presented.

In the non-vocational schools 1,145, or 51 per cent, of the 2,258 pupils answering the question have fathers who are farmers. If we consider as farmers the 127 laborers reported, the percentage is 56. The vocational schools showed 64 per cent of the fathers to be farmers. From this it would seem that, if the father's occupation is to be a factor in determining the curriculum for the pupil, there is about as much argument for the agricultural curriculum in the non-vocational schools as for this curriculum in the vocational schools. Twenty-nine different occupations are reported by the pupils in non-vocational schools in addition to that of the farmer. The fathers of 16 pupils are teachers; of 127, laborers; of 65, miners; of 97, railroad men; of 88, carpenters. In the thirty-four schools the fathers of only two pupils are janitors.

3. *What the pupils in these high schools expect to do immediately after graduation.*—Of the 2,042 pupils in the vocational schools answering the question with regard to what they expect to do immediately after graduation, 1,118, or 54.8 per cent, expect to enter college; 202, or 9.9 per cent, expect to go to business college; 148, or 7.2 per cent, expect to teach, which probably means that they also will go to college. Thus, 72 per cent of the pupils expect to enter either a regular college or a business college. Three hundred and eighty-seven, or 19.0 per cent, of the pupils are undecided. Only 54, or 2.6 per cent, of the pupils expect to go on the farm immediately. Since

[1] William Heard Kilpatrick, *Foundations of Method*, p. 146. New York: Macmillan Co., 1925.

the fathers of 64 per cent of the pupils are farmers, there does not seem to be any marked tendency for these pupils to follow the occupations of their fathers.

Of the 2,555 pupils in the non-vocational schools answering the question, 1,541 are going to college and 226 to business college. If we add to these the 147 pupils who plan to teach, a total of 1,914 pupils, or 74.9 per cent, plan to enter college. Three hundred and twenty-three pupils, or 12.6 per cent, are undecided. Only twenty-four boys and thirteen girls, or 1.4 per cent of the total, expect to go on the farm. Another 196, however, stated that they expect to go to work as soon as they finish their high-school work. Doubtless, many of these will go to work on the farm.

4. *What the pupils in these high schools expect to do ultimately.*—Many of the pupils in the vocational schools are undecided as to what they are going to do ultimately. Of the 1,758 pupils answering the question, 38.4 per cent are undecided; 31.4 per cent (58 boys and 494 girls) are planning to teach; 6.4 per cent are planning to be farmers; 6.4 per cent plan to become stenographers; 5.4 per cent plan to be bookkeepers. The choices of the remaining pupils are scattered among twenty-four different occupations.

Of the 2,243 pupils in the non-vocational schools answering the question, 27.6 per cent are undecided and 23.5 per cent expect to teach. The teaching group is composed of 47 boys and 479 girls. Seven and three-tenths per cent of the pupils are going into engineering; 6.5 per cent are going to "work"; 6.1 per cent expect to do stenographic work; and only 2.5 per cent expect to go on the farm. It will be recalled that in the vocational schools the percentage of pupils planning to be farmers is 6.4.

[*To be concluded*]

# ORIGIN AND DEVELOPMENT OF THE PUBLIC HIGH SCHOOL IN PHILADELPHIA

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## HISTORICAL STATEMENT OF ORIGIN[1]

In 1836 the legislature of the state of Pennsylvania passed an act which gave power to "the School Controllers [Board of Public Education] of the First School District of Pennsylvania" (Philadelphia) to establish "one central high school and to support it by money obtained in the same way that money was obtained for the support of other public schools." Coincident with the passage of this act was the passage of an act by Congress authorizing the distribution to the several states of the surplus funds then in the treasury of the United States. Pennsylvania's share of this money was divided among the school districts. The board of school controllers of Philadelphia immediately made plans to use their share of these funds for the establishment of the Central High School authorized by the legislature in the act of 1836. The minutes of the meetings at which these plans were laid contain the following statements as to the reasons of the board for wishing to take advantage of the opportunity offered them to establish such a school.

1. The school is to serve as an incentive to all people to send children to the public schools.
2. It is to educate teachers for the elementary schools.
3. It is to help to remove the stigma of pauperism from the public schools.[2]

The first and third reasons show that 1836 was still so close to the period when free public schools were for the poor only that the public school system was not in as good repute as an educational system as it became with the passing of the years.

In carrying out its plan to establish a high school, the board of

[1] Franklin Spencer Edmonds, *History of the Central High School of Philadelphia*, chap. i. Philadelphia: J. B. Lippincott Co., 1901.

[2] *Annual Report, Board of School Controllers, Philadelphia, 1837.*

controllers secured a plot of ground on Juniper Street between Market and Chestnut streets, the present location of the John Wanamaker store. On this plot was erected a new building as up to date for that period as the builders could make it. The cornerstone of the new building was laid with appropriate ceremonies on September 19, 1837. The building was completed and ready for occupancy early in October, 1838. It is curious to note that the time required to finish this high school after the cornerstone was laid is almost exactly the same as the time required for similar finishing of the great modern secondary schools being erected in Philadelphia today, about ninety years later.

The opening of the Central High School of Philadelphia in October, 1838, was a noteworthy event in the history of education in the United States. It marked the establishment of the first public high school in the United States outside of the New England section, and its immediate success was an important victory for the public high school in the struggle then beginning between the public high school and the academy.

The first faculty consisted of four teachers. In the first class of pupils admitted there were sixty-three boys, ranging in age from ten to sixteen years.

There seems to be no definite record of the courses pursued by these original pupils during their first year. Possibly the four teachers were organizing their courses. In 1839, however, we find announcements of three distinct courses—the principal course, the elementary course, and the classical course. The content of these courses was as follows:

Principal course (four years):
- Languages—English, French, and Spanish
- Geography and history
- Mathematics
- Mechanics and natural philosophy
- Natural history
- Morals and evidences of Christianity
- Writing (presumably penmanship)
- Drawing

Elementary course (two years):
- English
- Geography

Lower mathematics
Elements of mechanics and natural philosophy
Elements of natural history
Moral lessons
Writing
Drawing

Classical course (four years):
Languages—Latin, Greek, and English, with some French
Geography and history
Mathematics
Elements of mechanics and natural philosophy
Natural history
Moral lessons
Writing
Drawing

The existence of the three separate courses, their varying lengths, and their differentiated contents are remarkable evidence of a recognition at this early date of the several purposes of secondary education and of a sincere effort on the part of those responsible for the courses to meet the varying needs of the pupils enrolled. The two-year elementary course was evidently intended for pupils who could not give much time to secondary education and who wanted as much training for life as they could get in the time available. The principal course corresponds very closely in contents with the curriculum of the English High School established in Boston to meet the needs of those who desired adequate preparation for life rather than preparation for college entrance. The classical course was obviously for college preparation.

The annual reports of the board of education beginning with 1842, four years after the establishment of the first high school, give some interesting figures concerning the occupations of the parents of the boys in the Central High School. These figures are not included in the annual reports after 1860. The earlier reports, however, give an idea of the economic and social status of the secondary-school pupils of Philadelphia during the two decades immediately following the opening of the Central High School. Table I shows the figures for 1842, 1850, and 1860.

From the figures in Table I, we may see that in 1842 the pupil population of Philadelphia's one public high school was selective in

a sense but not in the sense we might expect. The occupation represented by the largest number of pupils is that of "gentlewoman," but that item includes only about 15 per cent of the total number of cases recorded. The manual trades, including the eighteen cases listed as "scattering," cover fifty-three, or approximately 70 per cent, of the seventy-five cases listed. It is also noticeable that not a single

TABLE I

DISTRIBUTION OF PUPILS IN THE CENTRAL HIGH SCHOOL IN 1842, 1850, AND 1860 ON THE BASIS OF THE OCCUPATIONS OF THEIR PARENTS

| Occupation | Number of Pupils (1842) | Occupation | Number of Pupils (1850) | Occupation | Number of Pupils (1860) |
|---|---|---|---|---|---|
| Gentlewoman (widow) | 11 | Merchant | 22 | Merchant | 10 |
| Cordwainer | 8 | Clerk | 17 | Clerk | 10 |
| Clerk | 7 | Carpenter | 16 | Gentlewoman | 9 |
| Tailor | 7 | Gentlewoman | 14 | Carpenter | 6 |
| Carpenter | 6 | Clergyman | 9 | Druggist | 5 |
| Mariner | 3 | Tailor | 8 | Grocer | 5 |
| Watchman | 3 | Manufacturer | 7 | Physician | 5 |
| Bricklayer | 2 | Teacher | 6 | Agent | 4 |
| Brushmaker | 2 | Innkeeper | 6 | Dressmaker | 4 |
| Carter | 2 | Grocer | 5 | Bookseller | 3 |
| Currier | 2 | Physician | 5 | Cordwainer | 3 |
| Druggist | 2 | Saddler | 4 | Clergyman | 2 |
| Manufacturer | 2 | Lawyer | 4 | Coachman | 2 |
| Scattering (one each of various trades—baker, grocer, printer, machinist, etc.) | 18 | Hatter | 4 | Confectioner | 2 |
| | | Cordwainer | 3 | Editor | 2 |
| | | Bricklayer | 3 | Laborer | 2 |
| | | Broker | 3 | Scattering | 20 |
| | | Cooper | 3 | | |
| | | Laborer | 3 | Total | 94 |
| | | Scattering | 44 | | |
| Total | 75 | Total | 186 | | |

case of a learned profession was recorded. This latter situation is probably the result of the feeling that the free schools were pauper schools.

By 1850 the work of the public high school had developed to such an extent that it was no longer under the stigma of pauperism. The figures show that, while only about $7\frac{1}{2}$ per cent of the parents were gentlewomen, the learned professions and business other than the manual trades constituted about 40 per cent of the total and the manual trades only about 30 per cent. Even in 1850 the selectivity

was not so great as we might expect from records in other parts of the country.

In 1860 the proportions were approximately the same as in 1850, although, for some unknown reason, the number of cases listed was only about half as large.

### SIGNIFICANT MOVEMENTS AFFECTING THE DEVELOPMENT

The earliest movement affecting the development of the public high school in Philadelphia seems to have been the movement to replace with women the men teachers in the elementary schools. The effect of this movement was to cause the board of public education to establish in 1848 a "normal school" to train women teachers for the elementary schools. This school was simply a secondary school for girls, as is shown by the fact that it was abandoned in 1859 when the growing movement for the extension of opportunities for secondary education to girls caused the board to establish the Philadelphia High School for Girls. This girls' high school served as a normal-training school for many years.

The next educational movement to exert a considerable influence on the development of the public high school in Philadelphia was the manual-training movement. In 1884 the annual report of the president of the board of public education contained a recommendation for the establishment of "manual training schools to demonstrate the advantages of hand-training in connection with head-training." The board evidently approved this recommendation, since the first manual-training school was opened on September 15, 1885, at Seventeenth and Wood streets. This school began with 130 pupils. Its only course, three years in length, included literature, elocution, mathematics, English composition, history, physical geography, metal work, woodwork, and mechanical drawing. About one-third of the pupil's time was at this period given to woodwork and metal work. The first recommendation of the principal of this new manual-training school to the board of education was that the requirements and time allotments for literature and mathematics be increased.

By 1888 the number of pupils in this manual-training school had increased to 326, and the course of study had been expanded to include literature, American history, bookkeeping, chemistry, drawing

(both mechanical and free-hand), geometry, trigonometry, surveying, wood-carving, mechanical construction, algebra, physical geography, geology, pattern-making, smithing, botany, mensuration, arithmetic, carpentry, and joinery. It may be noted that the new subjects were about equally divided between handwork subjects and academic subjects.

In the same year, 1888, the president of the board of education in his annual report suggested the desirability of establishing another manual-training school in the northeastern part of the city and added the statement that this type of school was becoming so popular that he expected that five or six of them would soon be needed in different districts. The next year, 1889, he made a definite recommendation for the establishment of the school in the northeastern section of the city. In 1890 the North East Manual Training School opened at Howard Street and Girard Avenue in an old elementary-school building. This school began with five teachers and 120 pupils and with the same course of study as the earlier school. The North East Manual Training School was at first organized as an annex of the Central Manual Training School.

The organization of these schools, with their shorter courses and the omission of most of the foreign-language work, did much to popularize secondary education in Philadelphia and to help to bring on the vast increase in secondary-school enrolment which began about 1890.

The next movement which affected the development of the public high school in Philadelphia was another phase of the attempt to make secondary education meet the needs of a larger group of pupils, namely, the organization of commercial courses.

In 1893 there was organized in the Philadelphia High School for Girls a three-year course, called the "business department." When this course was begun, it included the subjects shown in Table II. After 1898 the course of study was revised as shown in Table III. This course proved so popular that in the seven years from 1893 to 1900 the number of pupils enrolled increased from 240 to 1,091, or approximately 350 per cent. In 1901, when the new building of the Central High School was opened at Broad and Green streets, the old building across the street was used to house the business depart-

ment of the Philadelphia High School for Girls, and the department was made a separate school under the name, "Commercial High School for Girls." Later this school became the Wm. Penn High School for Girls in a magnificent new building at Fifteenth and Wallace streets.

About three years after the establishment of the business department of the Philadelphia High School for Girls a similar arrangement was made in the Central High School under the title, "commercial

TABLE II

COURSES IN THE BUSINESS DEPARTMENT OF THE PHILADELPHIA HIGH SCHOOL FOR GIRLS IN 1893

| Subject | Number of Periods a Week |
|---|---|
| Business forms | 3 |
| Commercial arithmetic | 3 |
| English | 3 |
| General history | 2 |
| German or French | 3 |
| Music (sight singing) | 1 |
| Penmanship | 2 |
| Physical exercise | 2 |
| Physiology | 1 |
| Stenography and typewriting | 5 |
| Total | 25 |

course." This course was at first only three years in length. It was identical in content with that offered in the business department of the Philadelphia High School for Girls except that the boys did not have music and had more physical training.

In 1908 the movement for practicalizing secondary education, or meeting the needs of those who wished to be prepared to earn their living, led to the opening of the Trade School for Boys in an old elementary-school building at Twelfth and Locust streets in the central part of the city. This school offered definite courses in the trades and at first was scarcely considered as a secondary school. Later this school was abandoned as an attempt to teach trades and was used for the mechanic-arts course of the Central High School.

A trade school for girls was established a little later than the

one for boys. It has proved so successful that a large new building is now under construction to house its activities.

In 1907 the first of the so-called "district" or sectional high schools was opened in the southern section of the city as the Southern

TABLE III

COURSES IN THE BUSINESS DEPARTMENT OF THE PHILADELPHIA HIGH SCHOOL FOR GIRLS IN 1898

| Subject | Number of Periods a Week |
|---|---|
| First year: | |
| Algebra | 4 |
| English | 5 |
| General history | 3 |
| Business forms and penmanship | 3 |
| French, German, or Spanish | 3 |
| Physical and commercial geography | 3 |
| Physiology | 1 |
| Music | 1 |
| Physical exercise | 1 |
| Total | 24 |
| Second and third years: | |
| English | 3 |
| Bookkeeping | 3 |
| Commercial arithmetic | 2 |
| Business methods and commercial law | 2 |
| Typewriting | 3 |
| Stenography | 4 |
| Physics | 2 |
| French, German, or Spanish | 3 |
| Music | 1 |
| Physical exercise | 1 |
| Total | 24 |

Manual Training High School, with a three-year curriculum and with three differentiated courses of study—an academic course, a commercial course, and a mechanic-arts course. At this period of development, it was almost impossible for a pupil entering any one of these courses to transfer to another course.

When the Wm. Penn High School for Girls was opened, courses in domestic science were introduced there.

The movement for a wider geographical distribution of opportunities for secondary education and the overcrowded condition of the existing schools caused the opening in 1909 of annexes of the Central High School in West Philadelphia, Germantown, and Frankford. Each of these annexes has since grown into a fine separate high school.

At the present time there are in operation twelve four-year high schools in various sections of the city with two more under construction. The newest school of the twelve is the Overbrook High School, which opened in September, 1926. It is a very large, well-equipped building and is said to be one of the finest in the United States. It has been organized coeducationally with an equipment and a curriculum that are intended to make it the first really comprehensive high school in Philadelphia.

About 1910 there came into the schools an effort to extend secondary-school opportunities to adults who were able to attend school only in the evening. Elementary schools for this group had been in existence for a long time. Evening schools were opened in several of the high schools and grew so rapidly that now almost every high-school building has its evening classes. The latest development in this movement was the establishment in September, 1925, of a six-year evening high-school course leading to a diploma of the same grade that is awarded to the pupil who completes the four-year course in the day high school.

The latest movement to affect the development of the public high school in Philadelphia is the junior high school movement. In 1916 Philadelphia opened a junior high school in an elementary-school building in West Philadelphia. Today, 1926, there are twelve large junior high schools in successful operation with several others under construction. While these schools contain pupils of the seventh, eighth, and ninth school years, no attempt has yet been made to take the ninth-year classes out of the regular high schools. This means that, while Philadelphia has adopted the junior high school organization, the plan is not the usual 6-3-3 plan, since the so-called "senior high schools" are still the traditional four-year schools. This condition accentuates the problem of articulation between the ninth and tenth school years.

The board of education has announced that it intends eventually to place in junior high schools all the seventh- and eighth-year classes now in elementary schools. So far, however, there seems to be no intention of removing the ninth-year classes from the senior high schools.

### DEVELOPMENT BY NUMBERS

The development as measured by the changes in the number of public high schools and in the number of teachers and pupils in these

TABLE IV

NUMBER OF PUBLIC HIGH SCHOOLS IN PHILADELPHIA, NUMBER OF TEACHERS, AND NUMBER OF PUPILS AT VARIOUS PERIODS

| Year | Number of Public High Schools | Number of Teachers | Number of Pupils |
|---|---|---|---|
| 1838 | 1 | 4 | 63 |
| 1842 | 1 | 12 | 332 |
| 1850 | 1 | 12 | 505 |
| 1860 | 2 | 25 | 709 |
| 1870 | 2 | 28 | 1,051 |
| 1880 | 2 | 42 | 1,477 |
| 1890 | 4 | 80 | 2,514 |
| 1900 | 5 | 188 | 4,871 |
| 1910 | 8 | ..... | 10,542 |
| 1920: | | | |
| Four-year high schools | 11 | 820 | 16,993 |
| Junior high schools | 1 | 47 | 1,367 |
| 1925: | | | |
| Four-year high schools | 11 | 1,182 | 25,133 |
| Junior high schools | 12 | 694 | 16,596 |

schools is shown fairly well in Table IV. This table shows the influence of the various significant movements referred to in this article. For example, the increase in numbers in the four-year period between 1838 and 1842 was the result of the mere establishment of a secondary school. In the next eight years the growth in pupil population was so small as to be accounted for by the growth in the population of the city.

The trebling of the number of pupils and the number of teachers in the three decades between 1850 and 1880 can be accounted for by the opening of a high school for girls in 1859. It is interesting to note that the growth in the number of girl pupils in this period was much more rapid than the growth in the number of boy pupils. The num-

ber of boys in the Central High School remained practically stationary during this period, the figures being as follows: 1850, 505 boys; 1860, 556 boys; 1870, 556 boys; 1880, 502 boys. The figures for the Philadelphia High School for Girls during the same period indicate the tremendous influence exerted by the movement for the higher education of girls and women. The figures are as follows: 1860, 153 girls; 1870, 495 girls; 1880, 975 girls.

The large increase in the number of high-school pupils in the decade between 1880 and 1890 was due to the influence of the manual-training movement, which resulted in the establishment of two additional public high schools for boys.

From 1890 to 1920 Philadelphia felt the influence of the tremendous influx of pupils into all the public high schools of the country. After 1920 the junior high school movement became an additional factor in increasing the number of high-school pupils.

## PRESENT STATUS OF PUBLIC HIGH SCHOOLS IN PHILADELPHIA

1. *Organization.*—The public high school system in Philadelphia at the present time consists of twelve four-year high schools, each containing the ninth, tenth, eleventh, and twelfth years; twelve junior high schools, each containing the seventh, eighth, and ninth years; one trade school for girls; six evening high schools, which give work of secondary-school grade to adults (over sixteen years of age); one six-year evening high school giving regular secondary-school courses to adults and offering a diploma. There are, in addition, in the three large continuation-school centers classes for pupils who have completed their elementary-school work.

The board of education has been slow to adopt coeducation for pupils above the ninth year, and, as a result, four of the four-year high schools contain boys only; five contain girls only; in two schools boys and girls are kept in separate classes so far as possible. Only in the new Overbrook High School is coeducation completely established. In the junior high school coeducation is the invariable rule even in the ninth year.

2. *Curriculums.*—For many years the high schools were not under the direction of the superintendent of schools. Each high school was

governed by a committee of the board of education. The result of this plan was great variation in courses in the different schools. About ten years ago the high schools were placed under the department of superintendence, and almost immediately the courses were made uniform.

COMPARATIVE CURRICULUMS

| Central High School, 1839 | Business Department, Girls High School, 1893 | Typical Ninth-Year Curriculums (All High Schools), 1926 |
|---|---|---|
| Principal course (four years)—first year: | Four-year course — first year: | Preparation for a profession: |
| Languages — English, French, and Spanish | Business forms | Art |
| Geography and history | Commercial arithmetic | English |
| Mathematics | English | Physical education |
| Mechanics and natural philosophy | General history | Algebra |
| Natural history | German or French | Ancient history |
| Morals and evidences of Christianity | Music (sight singing) | Chorus singing |
| Writing (penmanship) | Penmanship | General science |
| Drawing | Physical exercise | Latin |
| Classical course (four years)—first year: | Physiology | Preparation for business: |
| Languages — Latin, Greek, English, and French | Stenography and typewriting | Art |
| Geography and history | | English |
| Mathematics | | Physical education |
| Elements of mechanics and natural philosophy | | Chorus singing |
| Natural history | | Algebra or general mathematics |
| Moral lessons | | Junior business training |
| Writing | | A foreign language or word study |
| Drawing | | Preparation for trades (boys): |
| | | Algebra |
| | | English |
| | | General science |
| | | History |
| | | Physical education |
| | | Auto mechanics, building construction, electrical construction, or mechanical construction |

At that time each school for boys had three separate courses—an academic course, a commercial course, and a mechanic-arts course. Each school for girls had three courses also—an academic course, a commercial course, and a home-economics course. This plan prevails in a modified degree even yet. An attempt has been made to break down the barriers between these courses by introducing a system of group curriculums which are offered for purposes of choice to the incoming ninth-year pupils. This attempt has succeeded to a de-

gree, but in actual practice the lines between the three courses are fairly sharp. There are certain constants in all these groups. English, mathematics, a foreign language or word study (etymology), history, and physical training are found in some form in all.

Another recently introduced practice that has modified the existing courses to some extent is that of promotion by subject.

In the junior high schools the seventh- and eighth-year pupils follow very closely the course of study planned for pupils in the same years in the elementary schools, except that a foreign language is introduced in the eighth year. The ninth-year program of studies in the junior high schools is in the process of formation at the present time.

Curriculums for 1839, 1893, and 1926 are shown on page 374.

## CONCLUSION

From this study it may be seen that the public high schools in Philadelphia began early, earlier, in fact, than in any part of the country except New England; that they have followed, in general, the line of development of the American public high school, being influenced by most, if not all, of the significant movements in education; that they experienced the great influx of pupils after 1890; and, finally, that they are responding, although somewhat slowly, to the movement for the reorganization of secondary education.

# THE DEMONSTRATION METHOD VERSUS THE LABORATORY METHOD OF TEACHING HIGH-SCHOOL CHEMISTRY[1]

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The study here reported was motivated by a desire to evaluate the demonstration method as a means of instruction in high-school chemistry. Thus far there has been no general dissatisfaction on the part of science teachers with the laboratory method, which has been practically the only procedure employed in the immediate past. Indeed, there are few who could conceive the possibility of teaching chemistry without a laboratory fully equipped for experimentation on the part of individual pupils. The laboratory method has been justified by advocates of this method on the ground that the manipulation of materials with proper directions develops a scientific attitude and a comprehension of acceptable methods of attack for the solution of new problems.

Without evidence we cannot be certain that the skills supposedly developed through the different elements of laboratory procedure result only from the usual method of teaching science. Such skills may result from phases of science instruction other than the laboratory program.

In this report the term "laboratory method" will be employed in the popular sense, meaning a procedure wherein the pupils perform experiments individually or in groups. The use of the term "demonstration method" will imply the observance by pupils of the performance of experiments by the instructor without any manipulation of materials or apparatus by the pupils.

In an endeavor to establish the relative value of the demonstra-

[1] The complete data on which this article is based are included in a Master's thesis on file in the library of the University of Texas. The writer is indebted to C. T. Gray and F. J. Adams, of the University of Texas, for suggestions in the preparation of this thesis and this article. He wishes also to express his appreciation of the co-operation of Mildred Cooke and F. A. Smith, both of the Austin High School, Austin, Texas.

tion and the laboratory methods of science instruction, four regular classes in high-school chemistry were equalized with respect to mental ability on the basis of scores made on the Miller Mental Ability Test. Each of the groups contained superior, average, and dull pupils. Slight differences in mental ability among the four groups at the close of the experiment were unavoidable, being due to the difficulties of registration, conflicts in programs, and withdrawal of pupils. The median for the demonstration groups was slightly higher than the median for the laboratory groups.

In the instruction of the pupils the writer was assisted by Mildred Cooke, of the science department of the Austin High School. Each instructor had charge of one laboratory group and one demonstration group. For the purpose of comparing the two forms of instruction, all test scores were combined for the two laboratory groups and for the two demonstration groups. This procedure made the data more reliable, a larger number of cases being included and the results being less dependent on the personality of the instructors.

There were forty-two pupils in the combined demonstration groups and forty-three pupils in the combined laboratory groups. These groups were practically equal so far as mental ability was concerned.

In order to eliminate such factors as fatigue and lagging of interest, all four classes were scheduled for the same part of the school day. The laboratory groups met the first and second periods twice a week for their experimental work, and the demonstration groups met the third and fourth periods on the same days.

The physical-science department of the Austin High School has two lecture rooms with demonstration desks and two fully equipped laboratories, thus making it possible for two classes to have either laboratory work or demonstrations during the same periods and facilitating the co-operation of the two instructors in this investigation. In order to avoid rivalry among the pupils, the fact that a study was being made was not divulged. It is doubtful whether the pupils in the third- and fourth-period classes discovered at any time that they were given the same examinations as those given to the pupils in the first- and second-period classes.

An attempt was made to administer the same instruction to both

groups. The same textbooks and laboratory manuals were furnished all pupils, and the same assignments were made at the beginning of each period. So far as possible, the same topics were discussed during the recitation or lecture periods, and both instructors guarded against a review of any material having any bearing on the matter involved in the laboratory or demonstration experiments.

The same reports were required. The same directions for performing the experiments were followed by the instructor in demonstration work and by the pupils in individual laboratory work. The same kind, size, and amount of materials and apparatus were used.

There may have existed slight differences in the methods employed by the two instructors. However, this probably had a negligible effect on the results obtained, because all four groups were practically the same size and the results obtained in the demonstration and the laboratory classes of the two instructors were respectively combined.

The advantages of the laboratory method were discussed by the instructors and the head of the department, and an attempt was made to make the laboratory function as it should in giving freedom to the individual and in developing a scientific attitude.

Miss Cooke's technique is best described in her own words:

> In the case of the laboratory group, the experiment to be performed had been assigned the preceding day, and each pupil was expected to have in mind the general nature of the work to be done. Questions were asked to arouse interest and to determine whether the pupils understood the purpose of the experiment. During the laboratory periods, the instructor passed from pupil to pupil, asking such questions as would determine whether they understood the purpose of each part of the apparatus and were interpreting the results correctly. In case they did not understand, they were asked such questions as would lead them to think the problem out for themselves. Helpful suggestions on laboratory technique were given whenever necessary. After the completion of the laboratory work, mimeographed sheets were filled out by the pupils for their permanent reports. An attempt was made by the instructor to lead the pupils to depend on themselves and not on others in the laboratory or on the instructor.
>
> In the case of the demonstration group, the procedure was the same with the exception that the instructor set up the apparatus and performed the experiment before the class. As the experiment proceeded, the instructor stated the chemicals used in each operation and, by the use of questions, led the pupils to interpret the results for themselves.

The recitation procedure was the same for the two groups. The first part of the period was used by the pupils in filling out the test forms which concerned the experiment performed or observed the preceding day.

The writer's methods were very similar to those employed by Miss Cooke. The work covered by the experiments was not discussed during the recitation periods unless it was unavoidable, and then care was taken to see that both groups received the same treatment.

In answer to a possible criticism that the demonstrations during the third and fourth periods might have been influenced by the instructors' experience with the laboratory groups during the preceding periods, it may be stated that each of the instructors had taught chemistry for several years, using the same laboratory manuals containing the same experiments and, furthermore, that each of the instructors taught another class which performed the same experiments a day or two before they were performed by the experimental groups. Moreover, the directions in the laboratory manuals were followed as strictly by the instructors as by the pupils in the laboratory groups.

The laboratory equipment was complete in every respect so far as the requirements of the experiments were concerned, lockers being provided for each two pupils. The pupils were paired with pupils of like mental ability in an effort to require each pupil to rely on himself.

Ten experiments were involved in the investigation, the experiments being selected not because they were suitable for either method but because they were experiments commonly undertaken at the time the study was made. It is thought that they are typical experiments usually performed in the laboratories of secondary schools and that their performance involves a variety of fundamental principles and laboratory techniques. The experiments are as follows:

1. Preparation and properties of nitric acid
2. Preparation and properties of nitric oxide
3. Preparation and properties of bromine
4. Preparation and properties of iodine
5. The halogen acids
6. Destructive distillation
7. Properties of carbon

8. Preparation and properties of carbon dioxide
9. Hard waters
10. Borax and boric acid

In an effort to measure the relative merits of the laboratory and the demonstration methods of instruction, three types of tests were employed—tests to measure immediate retention, delayed retention, and method of attack. The first tests were administered one day after each experiment. Each test consisted of twenty questions; five were multiple choice; five were completion; five were matching; the last five were necessarily miscellaneous because of the varying nature of the different experiments. These questions were based on the italicized sentences in the laboratory manuals and therefore did not favor the method of either instructor.

The test for delayed retention was given three weeks after the completion of the ten experiments and consisted of four questions selected from each of the ten tests for immediate retention, making a total of forty questions. Twenty of these questions were completion; ten were matching; and ten were miscellaneous.

Immediately after the performance of the tenth experiment, all groups were given a test on a problem with which they had not been previously confronted. The questions were based on an experiment in their laboratory manuals—preparation and properties of nitrous oxide. The scoring of this test allowed ten possible points for diagrams and ten possible points for completion questions. The values of the different parts of the diagrams were agreed upon by the instructors before the tests were administered and were strictly adhered to during the scoring of the tests.

All tests were scored by the writer by means of keys which had been prepared before the tests were administered. The scores on each type of question in the tests for immediate retention were combined for each pupil, making a total score based on the results from fifty multiple-choice questions, fifty completion questions, fifty matching questions, and fifty miscellaneous questions. The scores for the various types of questions employed were equated by Kelley's method and expressed in sigma scores, which were combined and averaged for each pupil.[1]

[1] Truman L. Kelley, *Statistical Method*, p. 116. New York: Macmillan Co., 1923.

The tests for delayed retention and for method of attack were accorded the same treatment. This treatment consisted in determining the standard deviation for each type of question in each test. Then the deviation of each pupil from the average score was divided by this standard deviation; the results thus obtained were designated as "sigma scores." These sigma scores for the different types of questions in a certain test were added and averaged to obtain the final sigma score. For example, if the score made by Pupil A on the completion questions in the test for immediate retention was 30, while the average score on these questions was 25, the deviation

TABLE I

AVERAGE SIGMA SCORES OF THE TWO GROUPS OF PUPILS ON THE THREE TYPES OF TESTS

| Test | Laboratory Groups | Demonstration Groups |
|---|---|---|
| Immediate retention..... | −.648 | .077 |
| Delayed retention..... | −.461 | .375 |
| Method of attack..... | −.022 | .039 |

would be +5. If the standard deviation for the completion questions on this test was 5, the sigma score for Pupil A would be +1, which means that the score made by this pupil is 1 times the standard deviation and that it is above the median score. In like manner, if the sigma scores calculated for the other types of questions in the test for immediate retention were −1.0, +1.5, and −1.1, the total sigma score would be +.4 (the sum of +1.0, −1.0, +1.5, and −1.1), and the average sigma score would be +1.

The average sigma score on the test for immediate retention was −.648 for the combined laboratory groups and .077 for the combined demonstration groups (Table I). These scores indicate that the demonstration method of instruction is superior to the laboratory method in presenting material for immediate or temporary retention.

The average sigma score on the test for delayed retention was −.461 for the laboratory groups and .375 for the demonstration groups. These scores seem to indicate not only that a greater proportion of knowledge is derived from the demonstration method of instruction but that its retention is relatively permanent. The re-

sults of the tests for immediate and delayed retention indicate that, so far as imparting information is concerned, the average pupil acquires more knowledge through the observance of the work of the instructor than he acquires through his own efforts in the laboratory.

The average sigma score for the combined laboratory groups on the test for method of attack was −.022; for the demonstration groups, .039. Although the superiority of the demonstration groups on this test was slight, the writer believes it to be very significant, for, if the claims are valid that pupils acquire through the laboratory form of instruction a scientific attitude and a method of attack, the

TABLE II

CORRELATIONS BETWEEN SCORES ON THE MILLER MENTAL ABILITY TEST AND SCORES ON THE THREE TYPES OF TESTS EMPLOYED

| Tests | Correlation | P.E. |
|---|---|---|
| Miller and immediate retention: | | |
| Laboratory groups | .427 | ±.094 |
| Demonstration groups | .641 | ±.061 |
| Miller and delayed retention: | | |
| Laboratory groups | .274 | ±.095 |
| Demonstration groups | .529 | ±.073 |
| Miller and method of attack: | | |
| Laboratory groups | .380 | ±.087 |
| Demonstration groups | .450 | ±.083 |

superiority of the laboratory method in the test under consideration should be very much in evidence. This was not the case, however, and the only possible interpretation is that, so far as the results of this test are an indication, pupils acquire about the same concept of the method of attacking a problem in chemistry from watching the work of the instructor as they acquire from actually performing individual work in the laboratory.

One of the important problems receiving considerable attention at the present time is that of the adaptation of curriculums and instruction to individual differences in learning ability. With this point in mind, it was thought advisable to determine, by means of correlations, which of the two methods affords the greater opportunity for learning when differences in mental ability are considered.

As shown in Table II, higher correlations were obtained in the

case of the demonstration groups. A possible interpretation of these results is that the demonstration method provides greater opportunity for accomplishment in proportion to the pupil's mental ability than is offered by the laboratory method. The lower correlation for the laboratory groups indicates that there is a lesser tendency for the laboratory method to provide opportunity for the different levels of mental ability. These findings might also imply that in the laboratory method of instruction the mentally inferior pupils acquire their knowledge at the expense of the mentally superior pupils or that the laboratory method employed failed to make provision for individual differences in learning ability.

TABLE III

AVERAGE SIGMA SCORES OF INFERIOR AND SUPERIOR PUPILS

| | Laboratory Groups | Demonstration Groups |
|---|---|---|
| Immediate retention: | | |
| Inferior pupils | −.727 | −1.107 |
| Superior pupils | .316 | 1.071 |
| Delayed retention: | | |
| Inferior pupils | −.480 | −.526 |
| Superior pupils | .195 | .851 |
| Method of attack: | | |
| Inferior pupils | −.103 | −.244 |
| Superior pupils | .082 | .477 |

An attempt was made to interpret the relative scores obtained by the upper and the lower halves of the demonstration and the laboratory groups, referred to here as the mentally superior and the mentally inferior pupils. The actual scores are presented in Table III.

The average sigma scores of the inferior pupils in the laboratory and the demonstration groups on the test for immediate retention were −.727 and −1.107, respectively. Although the difference is slight, it indicates that the average inferior pupil in the laboratory groups made a higher score than the corresponding pupil in the demonstration groups. It must be remembered in this connection that the time required for the demonstration as performed by the instructor was little more than half the time employed by the pupils in the individual laboratory work, and this time element might have had some effect on the learning of the inferior pupils.

A greater difference in average sigma scores on the test for immediate retention was found in the case of the superior pupils. The scores for those in the laboratory and the demonstration groups were .316 and 1.071, respectively, indicating that, for the purpose of conveying immediate knowledge to pupils of superior mental ability, demonstrations are to be preferred to individual laboratory work.

The average sigma scores of the inferior pupils in the laboratory and the demonstration groups on the test for delayed retention were −.480 and −.526, respectively. These scores indicate that at the time the test was administered the average inferior laboratory pupil retained relatively more knowledge than did the corresponding demonstration pupil. However, an examination of the average sigma scores of both the inferior laboratory pupils and the inferior demonstration pupils on the tests for both immediate retention and delayed retention may indicate that retention decreases more rapidly as time goes on in the case of the laboratory groups than in the case of the demonstration groups.

The average sigma scores of the superior laboratory pupils and the superior demonstration pupils on the test for delayed retention show a decided superiority of the demonstration method over the laboratory method as a means of imparting knowledge to superior pupils for relatively permanent retention.

The average sigma scores of the inferior pupils in the laboratory and the demonstration groups on the test for method of attack were −.103 and −.244, respectively. These scores indicate that, for the purpose of acquiring a method of attack, the laboratory method is more suitable than the demonstration method for the average inferior pupil. The difference in scores is slight, however, and may be accounted for by the difference in time necessary for the presentation of the instructional content by the two methods involved.

A greater difference is found in the average sigma scores of the superior pupils in the laboratory and the demonstration groups, these scores being .082 and .477, respectively. These scores show that the demonstration method is the more efficient means of providing pupils of superior mental ability with a method of attack.

The results discussed in the preceding paragraphs are consistent in that, so far as inferior pupils are concerned, better scores were

made when they were taught by the laboratory method. However, the advantage is consistently slight. The results are also consistent in that the average sigma scores of the superior pupils in the demonstration groups on all three types of tests were considerably higher than the average sigma scores of the superior pupils in the laboratory groups.

The discussion of results may be summarized as follows:

1. The demonstration method is superior to the laboratory method in teaching mentally heterogeneous groups of pupils for the purpose of immediate retention of subject matter in high-school chemistry.

2. It is also evident that, when applied to groups of pupils of unequal mental capacity, the demonstration method is better suited for the presentation of information for relatively permanent retention than is the individual laboratory program.

3. For the purpose of imparting to a group of pupils a scientific attitude and training in a method of attack on new problems, the demonstration method is equal, if not superior, to the laboratory method of instruction.

4. From the standpoint of the coefficients of correlation, it appears that the demonstration method provides superior opportunity for adaptation to individual differences in mental ability so far as teaching for immediate retention, delayed retention, and method of attack are concerned.

5. So far as providing knowledge and method of attack are concerned, the laboratory method is slightly superior to the demonstration method in the case of the average inferior pupil.

6. For the purpose of providing knowledge for both immediate retention and relatively permanent retention and for the purpose of providing a technique for handling new problems, the demonstration method is much to be preferred to the laboratory method in the case of the average superior pupil.

This study has suggested to the writer many problems which must be solved in the quest for more efficient means of science instruction. Some of these problems may be enumerated as follows:

1. What influence has the personality or training of the teacher on the success of the demonstration method?

2. What is the optimum size of classes for the most efficient employment of the laboratory and the demonstration methods?

3. What would be the results of a measure of the retention of knowledge obtained by the two methods of instruction over a longer period of time?

4. Is the demonstration method superior for all experiments in high-school chemistry?

5. What procedure should be followed by the instructor in the performance of demonstrations in order to insure the most efficient results?

6. What size, kind, and amount of apparatus is most suitable for demonstration purposes?

7. Is the demonstration method superior for other high-school sciences?

8. Would the demonstration method prove to be superior for all introductory chemistry courses in the high school and in the university?

9. What are the relative life-motivating influences of the two procedures? Will the occupations based on chemistry be selected more frequently by pupils who have been taught this science by the demonstration method than by pupils who have been taught by the laboratory method?

# Educational Writings

## REVIEWS AND BOOK NOTES

*A treatment of problems in general education.*—The keen interest which both educators and laymen have shown in education within the past few years has been reflected in a very decided manner in the literature of the best magazines. The reading of well-selected phases of this literature should indicate the trend of education and afford a definite insight into modern educational problems. The selection and organization of the more significant material is a distinct educational service. A recent publication[1] embodies the outstanding articles on educational topics which have appeared in the *Atlantic Monthly* in the last few years.

The material in this book consists of twenty-three essays on educational topics written by essayists, editors, business men, and educators, presenting, on the whole, a composite view of the educational growth and needs of the present generation. The essays are grouped under seven major headings. The material is given unity and meaning by a brief introduction or foreword to the volume and to each major topic. Each essay is followed by a series of problems designed to clarify the meaning and to emphasize more clearly the point of view. The literary standard of the essays chosen is of a very high order. The seven major headings under which the various essays are grouped are: "Some Conceptions of Education," "Democracy and Public Education," "The Problem of Mental Discipline," "What Shall We Teach?" "Experiments in Progressive Education," "Education for Character," and "The Profession of Teaching."

Significant modern conceptions of education embodied in the several essays relate to the definition of education in terms of life and modern needs and purposes; the need for a high type of universal education for those who are to become effective citizens in a democracy; educational leadership; the study of subject matter not primarily for mental training but for the actual values inherent in the subject; the organization of the curriculum on the basis of a few indispensable subjects, such as English and general science, and many optional subjects; the substitution of life-realities for the artificialities of the school and of purposive action for drill; the development of the individual; education for character through practice in social living rather than through the memorization of rules and principles; and the establishment of a real profession of teach-

[1] *The Path of Learning:* Essays on Education. Selected and edited by Henry W. Holmes and Burton P. Fowler. Boston: Little, Brown & Co., 1926. Pp. x+488.

ing through the raising of standards, the introduction of scientific methods, and insistence on a scientific attitude on the part of teachers toward the curriculum, school organization and methods, and the study of pupils and of classroom problems.

The book should serve as a very satisfactory introduction to the general problems of modern education. Because of its nature, it is not suitable as a textbook; it contains very valuable material, however, for general reading or for supplementary use in courses in education. The extreme care with which the material has been selected and organized, the splendid introductory paragraphs forecasting the general trend of the group of essays to follow, and the appropriate problems emphasizing the point of view render the book extremely valuable as a means of gaining insight into the problems of present-day education.

R. S. NEWCOMB

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*Elementary psychology and principles of teaching.*—In our early American schools it was assumed that children are alike in needs, interests, and capacities. The function of the teacher was to act as a drillmaster and to see that all pupils acquired uniformly the subject matter of the drill subjects—reading, writing, spelling, language, and arithmetic. Even as late as 1890 the emphasis was on selected subject matter, psychologically organized and presented, which purported to train the faculties of children by a uniform procedure. More recent tendencies in education have emphasized the expression and appreciation subjects, which give opportunity for the development of individuality and self-activity on the part of the child. The individual child rather than selected subject matter of instruction is the new center of gravity in the educational world.

A new book[1] treats education in terms of individual change and development. Its purpose is "to give teachers who have not had the opportunity for extended work in psychology and education an understanding of the principles underlying the process of education" (p. vii). The first four chapters are devoted to a discussion of the meaning and aims of education. With the exception of two brief chapters, the remainder of the book is concerned with topics usually treated in elementary educational psychology: the nervous system, original nature, laws of learning, habit formation, individual differences, guidance, and standard tests.

The data presented are included in twenty-one tables and six charts, all of which are in the two chapters on individual differences. It seems out of proportion to concentrate this amount of data under one topic, to the entire neglect of concrete and quantitative evidence on certain other topics discussed. The reviewer questions the advisability of devoting seventy pages of a total of a little more than two hundred to the aims and purposes of education. In view of the title of the book, the reader might well expect a rather full treatment of methods

[1] Arthur J. Jones, *Education and the Individual.* New York: Century Co., 1926. Pp. xiv+226. $2.00.

of providing for the individual needs, interests, and capacities of children. As a matter of fact, only homogeneous grouping and individualized instruction (the Dalton and Winnetka plans) are mentioned.

The author expresses himself clearly and uses numerous illustrations that should hold the interest of the class of readers for which the book was written. However, in several instances there is evidence of lack of careful editing. The initials of F. N. Freeman (p. 47), G. D. Strayer (p. 107), R. S. Woodworth (p. 107), and G. Stanley Hall (p. 216) are misquoted at least once. The title of Freeman's *Psychology of the Common Branches* is given as *Psychology of the Common School Subjects* (p. 47). The arrangement of Table 20 (pp. 166–67) is especially unfortunate.

The student or teacher who has had courses in elementary educational psychology and principles of teaching or general methods will secure little additional information from the book. Teachers less fortunate in their professional preparation will find the discussion a practical, intelligible treatment of certain biological, sociological, and psychological principles that are applicable to educational procedure.

CARTER V. GOOD

MIAMI UNIVERSITY

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*Remaking the course in modern history.*—The increased interest in international affairs which has characterized America since our participation in the world-war is rapidly remaking the high-school course in modern history. In a recent textbook[1] illustrative of the reorganization of the course for which it is designed, we are told that "the world-war has changed the perspective of modern history" (p. iii). Especially is this true where the United States is concerned. We are realizing that "the issues of that struggle were the outcome . . . . of the political and social movements that had agitated the world since 1789" (p. iii). With such a realization in mind, the author of this text presents the events of the past two centuries in a manner designed to interpret the events of modern life and to answer questions raised by our new-found interest in the world-wide scope of modern affairs.

The book is divided into six parts, each with an introductory statement, or overview, followed by a number of chapters elaborating the central theme of the section. Part I, "Divine Right Monarchy," furnishes the background of modern times. In four brief chapters the governmental and social conditions in France, Russia, Central Europe, and England are presented as in the days of the "old régime." Part II, "The French Revolution," is made up of eight logical, terse, and tense chapters treating of the days between the calling of the Estates General and the fall of the Napoleonic Empire. Part III, "Nationalism and Democracy," is the longest of the sections and includes chapters on the Industrial Revolution, the era of Metternich, the failure of reaction, the advance

[1] J. Salwyn Schapiro, *Modern Times in Europe*. Boston: Houghton Mifflin Co., 1926. Pp. x+516+xxxvi. $1.96.

of democracy in England and its lack of advance in Russia, the Near East question, and the rise of united Germany and Italy. Part IV, "The Era of Reform," treats of political and humanitarian reforms throughout the Continent and Great Britain during the second half of the Nineteenth Century. In contrast with the following section, it is primarily concerned with domestic rather than foreign matters in the various nations. Part V is the story of imperialism and is entitled, "The Expansion of Europe." In Part VI, "The World War and After," relatively little space is given to the actual conduct of the war, but excellent material is presented on the causes and the results of the conflict. Reconstruction is considered in its political, social, and economic phases on a world-wide scale.

At first glance one is tempted to call these sections of the book "units," but close examination raises a question as to whether all six parts are, in reality, unitary in content. Especially is there doubt concerning Part III, "Nationalism and Democracy." This section combines the Industrial Revolution with the era of reaction and the development of nationalism, a combination likely to confuse the high-school pupil by its sheer weightiness. Moreover, a great deal of the story of the growth of democracy is presented not in the section entitled, "Nationalism and Democracy," but in the following section, "The Era of Reform." Had the Industrial Revolution (including the excellent chapter on "The Agricultural Revolution"), nationalism, and democracy been treated in three separate sections, the book would have been more unitary in presentation and more balanced in organization. However, aside from Part III, the book is remarkably well organized. This is particularly true of Part II, "The French Revolution," which is as excellent a treatment of that topic as is available for high-school pupils.

The point of view of the book is in conformity with the recent tendencies toward the socialization of history. In the Introduction we are told that the book "aims to give to the students a view of the various aspects of human life that go to make up the history of a nation" (p. iii). The events treated are social, political, economic, and cultural in character.

The book is written in a fascinating manner; the apt and frequent use of quotations from primary sources makes it "live" as few high-school histories do. Another excellent feature, increasing its interest for the average pupil, is the general use of cartoons as illustrations. The maps are good and complete. Each chapter is followed by a list of leading questions, which serve as excellent review material. There is also at the end of each chapter a list of special topics for investigation and reading references on each topic. The Appendix contains material of considerable value to the teacher.

The charm of style and the clarity of expression which characterize the book, together with its unmistakable conformity with the most recent tendencies in secondary education and its recognized authoritativeness in historical content, undoubtedly make it one of the outstanding works in its field. It merits wide use both as a text and as a reference book.

HOWARD E. WILSON

*Vocational education and guidance.*—As a nation, we are dedicated to a system of universal education to be given in public or private institutions. In recent years there has been a great deal of discussion of education as a continuing process, to be extended into adult life. We are told that graduation from school, at whatever level, is only the beginning of a preparation that must continue. We find, however, that large numbers of pupils are leaving school at different stages of early school life and that these individuals seldom return to school to continue their education. Those who leave school obviously have greater need for further education than those who graduate. Pupils who leave school often think that the things they learn in school are not of as much value to them as the things they might learn elsewhere. An educational need thus arises—further to train those who leave school prematurely and to introduce material into existing day schools to retain in school those who would otherwise leave. To meet this need, vocational courses have been introduced into existing schools, and trade schools, evening schools, continuation schools, and apprentice schools have sprung up.

A recent book[1] surveys this need; its object is "to trace the historic development of educational opportunity for employed youth; to show the needs of this group today; to describe existing opportunities for meeting these needs; to discuss the relative efficiency of these opportunities, portraying some types of successful agencies; and to suggest where emphasis should be placed in the educational program of the near future" (p. vii). The book is "the first unit of the Adult Education Study which is being conducted by the Carnegie Corporation of New York" (p. v). The purpose of this study is to determine the kind of educational opportunities offered by reading clubs, chautauquas, university extension courses, workers' classes, and private commercial and industrial schools and the number and kind of people who take advantage of these opportunities. Particular attention is paid to the effect of the increased leisure of workers on the materials of the curriculum.

The book is divided into three parts. In Part I, "The Development of the Present Situation," the author traces the history of young workers from the medieval guilds, through the early American apprenticeship and the Industrial Revolution, to the present time. Mention is made of the development of labor organizations, the growth of legal control of schools and employment, and the development of special education for young workers. In Part II, "The Group To Be Served," the author deals with the distribution of young workers; type groups, such as Y.W.C.A. girls, workers from fourteen to sixteen years old, and factory women; choice of occupational training; working conditions in cities; workers in villages; workers on farms; and the home background of the rural youth. Part III, "Educational Opportunities Which Serve," is devoted primarily to a discussion of co-operative schools, apprenticeship schools, evening schools, continuation schools, and vocational guidance. A summary chapter is included, as well as an appendix, which contains eleven tables.

[1] Owen D. Evans, *Educational Opportunities for Young Workers*. New York: Macmillan Co., 1926. Pp. xii+380. $3.80.

The study is based on published reports; hence the value which the book will have for the reader will depend on the extent to which he has encountered the material in the original publications. Certain tabular materials appear without headings or numbers (pp. 44, 108, 142, 143, 147). Parts I and II are largely statistical with some discussion. Part III describes several types of schools which attempt to meet the needs of vocational education. A list of pertinent references is given at the end of each chapter. The author feels the importance of training for life in an industrial society rather than of training solely for industrial efficiency. The general reader, the vocational teacher, and the student of education will find that the book brings together a large amount of historical and statistical material relative to the development and present status of vocational education, indications of present trends and limitations, and suggestions for further improvement.

HAROLD H. PUNKE

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*A course of study in junior high school geography.*—Thus far not many courses of study in high-school geography have been organized on the basis of the modern conception of geography as human ecology, that is, as dealing with the relations existing between man and the natural environmental attributes of the region in which he lives. In view of this fact, the recent production[1] of the Geography Course of Study Committee of the Baltimore public schools is both interesting and valuable. Not only is this junior high school course organized on the basis of the human point of view but it purports to give "a series of world-views, cross sections of human activities in relation to factors of the natural environment throughout the world" (p. 28), perhaps the greatest contribution that can be made by geography at the secondary-school level.

As to the manner in which such world-views should be given, there is lack of agreement among the authorities. The two most common methods of organizing materials are on the basis of regions and on the basis of products and industries. The regional plan is gaining advocates because it offers an opportunity to see at one time all the adjustments made by a group of people to all the phases of the natural setting of their homeland. In this new course of study the units to be covered—"Foods," "Fuel and Power," "Shelter," "Clothing," "Tools," "Luxuries," "Recreation," "Production," "Transportation," and "Consumption"—suggest the less effective plan of organization. The "Review of Part I" —"composite picture of what each country and each continent looks like in geographic terms" (p. 35)—is evidently an attempt to overcome the danger of failing to see groups of interrelated human activities that grow up in response to the peculiar natural environmental complex of each region.

Provision has been made for the use of all the materials which are of aid in the teaching of geography, such as maps, graphs, pictures, and clippings. A question might be raised as to whether it is possible to spend too much time collecting

[1] *Course of Study for Junior High Schools: Geography.* Baltimore: City Department of Education, 1926. Pp. 344.

such things as commercial samples and arranging them for an exhibit instead of doing work of a more valuable character. One of the most commendable features of the course is the attempt to provide for field work, one of the greatest needs of secondary-school geography. Much can be done to create geographic interest by providing opportunities to see at first hand how a great many people make their livings in city areas or country districts.

This new course of study is a forward step in the right direction, and, as a tool for improving the quality of geography instruction in the junior high school, it should be of great aid.

HENRY F. BECKER

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*Home economics for the junior high school.*—An up-to-date textbook on home economics is always welcome since there are few good textbooks on the subject and a large proportion of those which exist stress the acquisition of technical skill to the exclusion of subject matter. A recent book[1] emphasizes the many and varied problems which may be included in a study of clothing and the house and has the additional merit of being readily adaptable to the needs of different communities.

The book is a concrete example of the unit method of organizing home-economics material. Such chapter headings as "What You Can Make from the Kimono Pattern," "How To Dress in Good Taste," and "Fabrics That We Use Every Day" illustrate the grouping of material. In the past much of the textile and art subject matter has been taught in connection with garment-making. The authors feel that the inclusion of too much of such material prolongs a project until there is danger of destroying interest in the garment being made. Therefore, in a construction unit, they have included only those textile and art problems which are directly related to the making of the particular garment. The organization of the subject matter into separate units should admit of more adequate teaching and better understanding on the part of the pupils.

Each unit is developed by means of the problem method. Interest is gained by choosing the problems from real life-situations. From the beginning, there is a challenge to the girl's intellect. She is urged to strive for understanding as well as for the formation of habits and the cultivation of skills. Emphasis is placed on the development of responsibility and independence. The girl is given standards by which to judge her work in order that she may form habits of good workmanship. The tests for determining mastery of subject matter, which are included in each chapter, are a new feature. Additional home and school problems, which call for an application of the work of the unit to new situations, are frequently suggested.

Pupils will enjoy studying the book because of the interesting subject matter and the appealing style. It is simply and clearly written and is well illustrated.

[1] Mabel B. Trilling and Florence Williams, *A Girl's Problems in Home Economics*. Chicago: J. B. Lippincott Co., 1926. Pp. 314.

For the most part, the pictures and diagrams not only are attractive but also teach the points which they are intended to illustrate. The book should be especially valuable to the inexperienced teacher. It should prove a definite and helpful guide without in any way requiring a set program. The problems on clothing and the house are arranged in a sequence of increasing difficulty, but they admit of many combinations to fit varying conditions. The chapters on garment construction and textiles are the most complete and the strongest parts of the book. It is intended that the teacher should provide problems to supplement each unit according to the time available and other circumstances. Useful teaching devices are cleverly inserted in each unit. The book should be stimulating to both pupils and teachers.

AILSIE M. STEVENSON

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*Helping the teacher to find the right position.*—In keeping with the recent activity of college guidance bureaus to conserve vital economic forces by better adapting the specialist to his work, is a book[1] designed to eliminate large wastes in education by aiding the teacher in finding the right teaching position. The newer plan of the guidance bureaus is to make an analysis both of individual qualifications and of job specifications. The author of this book proposes that each teacher should know intimately his own capabilities and should learn definitely the facts about each vacancy before he applies for the position. He says: "Success in teaching can come through success in finding the right position in the right school and in the right community under the right supervision" (p. v).

The point emphasized throughout the book is that large wastes in education will be eliminated if employers can find the right teachers and if teachers can find the right positions. The author devotes three of the eleven chapters to instructions to teachers on locating and securing positions. In six chapters he discusses the necessity of better fitting the individual to his work and proposes methods of procedure. In the remaining two chapters he considers extra-professional activities and professional attitudes.

Better instruction can be secured, the author believes, by proper selection and placement of teachers and by careful follow-up work. The part of the teacher is to locate and secure a position fitted to his ability and training. Problems related to the location of vacancies, to the collection of data concerning local conditions, to written applications, and to personal interviews are discussed. The general conditions encountered by a teacher in the public schools and in higher institutions are described in an effort to aid the teacher in determining the type of service for which he should ultimately prepare. A teacher who feels that he is not properly placed or who is admittedly unsuccessful may discover, by reading these descriptions, a type of work in which he may be successful and happy.

[1] Harlan Cameron Hines, *Finding the Right Teaching Position*. New York: Charles Scribner's Sons, 1926. Pp. vi+200.

The part of the employer or of the guidance bureau is to exercise every care in selecting for placement teachers who will fit into the positions for which they are selected. The author discusses twelve intrinsic causes of waste in teaching efficiency (pp. 81–91), all of which may be removed in whole or in part by proper selection and placement. The most important question the employer raises is: "Can the applicant teach?" This question can be answered only by studying the teacher through actual observation of his teaching. One entire chapter is devoted to a discussion of selection on the basis of observation. The rule-of-thumb methods of securing teachers must be replaced by scientific analysis of the requirements of the position to be filled and of the qualifications of the applicants.

The book should be extremely helpful to a novice looking for his first appointment or to a teacher who is dissatisfied or unsuccessful in his work. Employers and guidance directors should find the material suggestive of better methods of guidance, selection, and placement.

The treatment throughout is direct and clear. The facts are presented without philosophical comment.

CLOY S. HOBSON

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*A new text for beginning Latin.*—A text[1] that is to be commended on the ground that it closely approximates the best tendencies in language-teaching has appeared. This book has been fully tried out in a demonstration school. It has proved satisfactory as a junior high school text, offering material for a course covering three semesters. It has also been used with success in the ninth grade. A careful examination of the grading of the successive lessons leads one to think that other schools would find it usable.

The text begins with simple Latin sentences which deal with classroom situations. The pupils are directed to repeat sentences after the teacher and to associate the word with the thing pointed out, not with the English word. So far, the plan is excellent. When the page is turned, however, one finds a Latin-English word list. In the Introduction the authors have said, "The number of words in the vocabularies set for memorization is small, and they should be thoroughly mastered." The combination of word list and passage quoted, although neither makes an explicit statement to that effect, at least invites the inference that it is the Latin-English word list that is to be memorized—an unfortunate impression for one to give who does not believe that Latin-English word lists should be memorized and a practice quite at variance with the directions to the pupils. Latin forms and syntax follow the Latin of the lesson and are based on it. There is abundant, well-organized study of English derivatives. The pupils' activity in Latin composition consists largely in answering Latin questions and completion exercises based on the material read. There is a minimum of translation from English into Latin. In addition to a list of essential

[1] Carrie Ambrose Parsons and Charles Edgar Little, *First Latin Lessons*. Boston: D. C. Heath & Co., 1926. Pp. xx+308.

words and syntax previously covered, the so-called "progress" tests contain excellent connected Latin stories with Latin questions based on them.

The vocabulary of the book as a whole amounts to about twelve hundred words. Many of these words do not appear in word lists, but the authors expect mastery through repetition. One is impressed by the large amount of non-classical Latin in the early stages. For example, of the eighty-five words in the first progress test (omitting proper names), sixteen do not appear in Lodge's *Vocabulary of High-School Latin;* eleven appear in his list of words which occur from one to four times. This is a rather high percentage of words of little value for later reading. To be sure, the authors justify their choice in their expressed intention of using the vocabulary of daily life and English derivatives. One wonders whether other words might not have been chosen which would be as good for these purposes and better for later reading.

The lesson on accent and pronunciation with which most texts begin is wisely deferred until the pupils have some acquaintance with Latin words. It contains the same general type of information usually given. The authors would have difficulty in proving that the Latin diphthong *eu* was pronounced as the *eu* in "feud." Quite as unfortunate is their citing of "idea" to show the sound of short *a* in Latin; one can think of no worse word owing to the variations that this word suffers in local pronunciation alone. The local situation disregarded, there is pretty general agreement on the fact that the *a* in "idea" is the obscure vowel represented in the national phonetic alphabet by inverted *e*—a thing which the *a* of *paro* certainly was not.

The content of the Latin presented and the illustrations are good for giving the pupils adequate pictures of Roman things and Roman attitudes. The book as a whole is sound, modern, and interesting.

MIMA MAXEY

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*A survey of examinations in history courses.*—The increasing demand for better-trained citizens has led to the introduction of large numbers of courses in history and the other social studies in the schools. Emphasis on training in citizenship as one of the objectives in the teaching of the social studies has resulted in attempts to ascertain the effectiveness of instruction in the case of different methods of approach. A recent study[1] is based on a survey of the final-examination questions asked by teachers of history.

Final-examination questions and tests were obtained from 1,125 schools and school systems located in all parts of the United States. A total of 2,250 papers, including more than 56,000 questions, were studied. Replies were received from very few private schools. The method of procedure involved the analysis and classification of the questions according to (1) topics in elementary- and secondary-school American history, ancient history, and medieval and modern history and (2) types of questions from the point of view of form.

[1] *Are We Making Good at Teaching History?* Prepared under the direction of W. J. Osburn. Bloomington, Illinois: Public School Publishing Co., 1926. Pp. 130. $1.25.

The results of the investigation cannot be summarized here, but certain important types of evidence can be stated briefly. The survey shows much duplication of content in elementary- and secondary-school courses in American history, as indicated by the final-examination questions; elementary-school teachers apparently are agreed on the essential materials to be tested to a greater extent than are high-school teachers. At least 75 per cent of the total number of questions are based on the memorization of textbook material. When classified according to the aims of history-teaching, the questions show that most teachers have not evaluated examinations in the light of current conceptions of the objectives of the social studies.

The thirty-three tables included in the report are well organized and clearly arranged. The explanation of the data is inadequate; repetitious statements concerning the data for the different fields of history become tedious reading and add little or nothing to the report. The arrangement of the book is unsatisfactory; one chapter contains only nine lines, while two other chapters cover less than one-half page each.

The results of the investigation will be of value to instructors in courses for teachers and to curriculum-makers. The appendixes contain a list of questions which were included in five or more final-examination papers and examples of the newer types of tests, which will be suggestive to teachers. The survey is comprehensive enough to provide a cross-sectional view of the types of final examinations administered in history courses, and the results are sufficient to engulf even the optimists in pessimism.

W. G. KIMMEL

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*An evaluation of modern movements in education.*—The author of a recent book[1] has been moved by the post-war pronouncements of certain radical groups of educators in Germany, France, and England to make a critical study of the activity school and the ideas on which it is based. He particularly protests against the claims made by activists at the German *Reichsschulkonferenz* in 1920, at the Conferences on New Ideals in Education held in England in 1919 and 1920, and in the *Doctrine Nouvelle* of the *Compagnons de l'Université Nouvelle.* He criticizes severely the extreme positions advocated by these reformers and pleads eloquently for a middle course between serfdom and anarchy in the classroom, between the jail and the play-hall conceptions of the school, and between autocratic teacher control and child worship.

The chapter on "The New Realism and Manual Work" is a vigorous and convincing presentation of the development of the child's personality as the prime objective of training in manual work, advocated particularly by extreme realists in Germany.

The third chapter begins with a concise statement of the main points in the "broader theory of activity." These points are discussed and criticized with acu-

[1] Michael J. Demiashkevich, *The Activity School:* New Tendencies in Educational Method in Western Europe. New York: A. G. Seiler, 1926. Pp. vi+150. $1.50.

men and skill. Professor Demiashkevich holds that deferred values as well as immediate values should be recognized in the program of the schools, that concentrated thinking as well as the "direct sensory handling of things" should be provided for, that a laissez faire policy which permits children to go through school without learning the correct use of language is clearly wrong, and that "regionalism" is quite inadequate for modern education. He feels that leaving the child alone will "deliver him to the mercy of the merciless world" (p. 111); it is far better, he maintains, to familiarize the pupil "with certain definite results that human experience has achieved" (p. 113) and to see to it that he is taught "continuity of effort toward realization of fundamental worthy ends" (p. 116). The play spirit is an admirable thing, but it is not as spontaneous in the football game, for example, as is sometimes proclaimed; "everything that is done is for the sake of a more distant end" (p. 117). Activists have tended to relegate the teacher to the background, but teacher leadership is necessary in education; in fact, "there is perhaps a fair amount of profound reason in the philosopher's dictum that obedience to genius is the best way open to us to be free" (p. 129). Professor Demiashkevich severely denounces the excessively critical attitude toward book-learning most strikingly expressed in Anatole France's *pronunciamento*, "Books are the opium of the West," and avers that the logical outcome of the practice of such theory is illiteracy. Children can be trained to like wholesome reading, and the citizen of the democratic state "must be a swift and discriminate reader of varied printed matter" (p. 140).

The author concludes with a beautiful homily on the organization of education in terms of world-understanding and world-brotherhood. The human race must cease thinking in atomistic terms and bend its energies toward the building of a universal supra-community; "may not the public school be among the builders?"

The treatise is unusually interesting and exceptionally well written. The author commands a rich and picturesque vocabulary, which he uses cleverly in clinching his points and in carrying the discussion forward. He ranges all over the field of literature and illustrates his ideas with most appropriate quotations from a host of philosophers, educators, poets, and novelists, both ancient and modern. Occasionally a solecism or a misprint mars the page, but this is easily forgotten amid the wealth of carefully chosen illustrative material with which the book abounds. Altogether, this is a book to delight or challenge the student of modern education.

DAVID GUSTAFSON

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## CURRENT PUBLICATIONS RECEIVED

### GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

ARENT, EMMA. *The Relation of the State to Private Education in Norway.* Teachers College Contributions to Education, No. 235. New York: Teachers College, Columbia University, 1926. Pp. x+94. $1.50.

BLACKSTONE, E. G. *Research Studies in Commercial Education.* University of Iowa Monographs in Education, First Series, No. 7. Iowa City, Iowa: University of Iowa, 1926. Pp. 160. $0.50.

BODE, BOYD H. *Modern Educational Theories.* New York: Macmillan Co., 1927. Pp. xiv+352.

CARROLL, ROBERT P. *An Experimental Study of Comprehension in Reading.* Teachers College Contributions to Education, No. 245. New York: Teachers College, Columbia University, 1926. Pp. vi+72. $1.50.

CRABB, ALFRED LELAND. *A Study in the Nomenclature and Mechanics Employed in Catalogue Presentations of Courses in Education.* George Peabody College for Teachers Contributions to Education, Number Twenty-one. Nashville, Tennessee: George Peabody College for Teachers, 1926. Pp. 98.

*Curriculum Problems in Teaching Mathematics.* Second Yearbook of the National Council of Teachers of Mathematics. New York: Teachers College, Columbia University, 1927. Pp. viii+298.

EIKENBERRY, D. H. *Syllabus of a Course in High School Administration.* Columbia, Missouri: D. H. Eikenberry, 1927. Pp. 134.

FORD, WILLARD STANLEY. *Some Administrative Problems of the High School Cafeteria.* Teachers College Contributions to Education, No. 238. New York: Teachers College, Columbia University, 1926. Pp. viii+148. $1.50.

QUANCE, FRANK M. *Part-Time Types of Elementary Schools in New York City:* A Comparative Study of Pupil Achievement. Teachers College Contributions to Education, No. 249. New York: Teachers College, Columbia University, 1927. Pp. viii+50. $1.50.

REED, HOMER B. *Psychology of Elementary School Subjects.* Boston: Ginn & Co., 1927. Pp. x+482. $2.00.

SMITH, H. BOMPAS. *The Nation's Schools* [England]. New York: Longmans, Green & Co., 1927. Pp. viii+308. $2.25.

SMITH, HOMER J. *Industrial Education:* Administration and Supervision. New York: Century Co., 1927. Pp. xx+334. $2.50.

SMITH, JAMES MONROE. *The Training of High School Teachers in Louisiana.* Teachers College Contributions to Education, No. 247. New York: Teachers College, Columbia University, 1927. Pp. x+102. $1.50.

WEBSTER, EDWARD HARLAN, and SMITH, DORA V. *Teaching English in the Junior High School.* Yonkers-on-Hudson, New York: World Book Co., 1927. Pp. xii+404. $2.00.

WOOLLEY, HELEN THOMPSON. *An Experimental Study of Children at Work and in School between the Ages of Fourteen and Eighteen Years.* New York: Macmillan Co., 1926. Pp. xvi+762.

### BOOKS PRIMARILY FOR HIGH-SCHOOL TEACHERS AND PUPILS

BAILEY, D. C. *A New Approach to American History:* Students' Guide Sheets. Chicago: University of Chicago Press, 1927. Pp. viii+82. $1.50.

CARPENTER, MILLINGTON F., MAULSBY, WILLIAM S., and KNOTT, THOMAS A. *Handbook of Correct Writing.* New York: Harcourt Brace & Co., 1927. Pp. 108. $0.80.

*Character Education:* An Outline Recommended for the Public Schools of New Hampshire. Concord, New Hampshire: State Board of Education, 1927. Pp. 88.

COOK, LUELLA B. *Experiments in Writing:* A High-School Textbook in Composition for the Junior and Senior Years. New York: Harcourt, Brace & Co., 1927. Pp. xii+504. $1.56.

FRANCE, ANATOLE. *Le livre de mon ami.* Adapted for the use of schools by V. F. Boyson. New York: Oxford University Press, American Branch, 1926. Pp. 210. $0.70.

HUNTER, GEORGE WILLIAM. *New Civic Biology:* Presented in Problems. Chicago: American Book Co., 1926. Pp. xii+448.

MERCIER, LOUIS J. A. *Junior French.* New York: Silver, Burdett & Co., 1927. Pp. xxviii+376+iv.

SPARY, V. C. *A Junior Reader in Economic Geography.* London: University of London Press, Ltd., 1926. Pp. xvi+172.

## PUBLICATIONS OF THE UNITED STATES BUREAU OF EDUCATION AND OTHER MATERIAL IN PAMPHLET FORM

*Annual Report of the General Education Board, 1925–1926.* New York: General Education Board, 1927. Pp. xii+66.

*The Child Health Demonstrations: Program and Policies.* The Commonwealth Fund Child Health Program, Bulletin No. 1. New York: Child Health Demonstration Committee (370 Seventh Avenue), 1927. Pp. 16.

*Child Health in Marion County, Oregon.* The Commonwealth Fund Child Health Program, Bulletin No. 2. New York: Child Health Demonstration Committee (370 Seventh Avenue), 1927. Pp. 20.

*Cooperation for Child Health in Athens, Georgia.* The Commonwealth Fund Child Health Program, Bulletin No. 3. New York: Child Health Demonstration Committee (370 Seventh Avenue), 1927. Pp. 16.

*High School Principals' Conference.* Bulletin of the School of Education, Indiana University, Vol. III, No. 2. Bloomington, Indiana: University Bookstore, 1926. Pp. 28. $0.50.

MADSEN, I. N. *Standard Tests and the Improvement of Teaching.* Lewiston State Normal School Bulletin, Volume XVII, Number 4. Lewiston, Idaho: Lewiston State Normal School, 1927. Pp. 32.

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Bulletin No. 22, 1926—*A Manual of Educational Legislation.*

Bulletin No. 1, 1927—*Educational Directory: 1927.*

## MISCELLANEOUS PUBLICATIONS

*Occupations for Women.* Edited by O. Latham Hatcher. Richmond, Virginia: Southern Woman's Educational Alliance, 1927. Pp. xxxviii+528. $3.50.